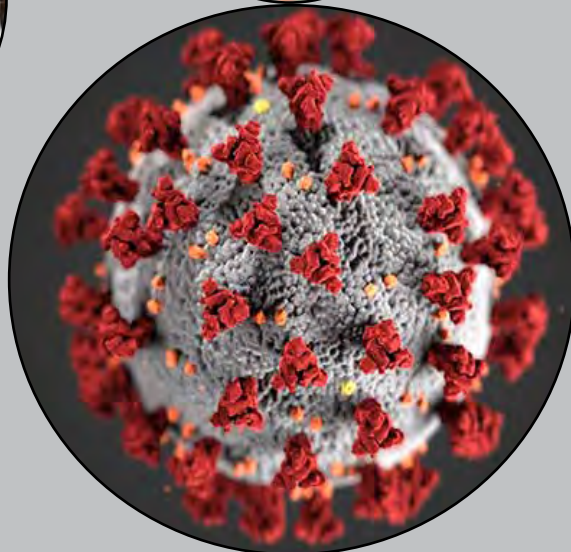
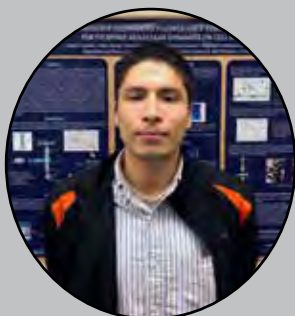


February 2021 | Vol. 7

P R O U D



PROGRAM RECOGNIZING OUTSTANDING UNDERGRADUATE DISTINCTION

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INTRODUCTION



Welcome to the seventh edition of CSU-LSAMP PROUD, the annual publication of the California State University Louis Stoke Alliance for Minority Participation. CSU-LSAMP PROUD recognizes the outstanding academic, research, and service achievements of students and alumni from throughout our alliance. Each year, the CSU-LSAMP coordinators at each of our alliance campuses nominate students to be recognized through our Program Recognizing Outstanding Undergraduate Distinction (PROUD). Our PROUD scholars have distinguished themselves in so many ways - in the classroom, in the laboratory, and in the community - and the success of CSU-LSAMP is truly written in their stories, which are featured in this publication.

As with much of all of our lives, the production of the publication was impacted by the COVID-19 pandemic and comes to you later than usual. All 23 of our campuses had to pivot to virtual instruction in March, 2020 and most have remained in dominantly virtual mode since then. This has impacted our ability to offer some of our signature programs, most notably our international research opportunities in Costa Rica and Uzbekistan, and some laboratory-based research programs. Our LSAMP community was also very much impacted by the 2020 summer of racial reckoning and the events surrounding the 2020 election. In this year’s publication, we feature the initial results of surveys we conducted with our students to assess the impact of the pandemic on them. We also feature the emergence of our own Associate Project Director, Semarhy Quinones-Soto, who has emerged as a talented artist who creates images of diverse women in science. And of course, this publication features our 2020 PROUD scholars. It is a publication like this that reminds us of the achievements of the CSU-LSAMP students and their incredible potential for success, despite challenging times. I hope you enjoy reading it as much as we have enjoyed producing it and that you find in it the hope for a better future that I do.

Lisa Hammersley, Ph.D.
Lead Project Director, CSU-LSAMP
Dean, College of Natural Sciences & Mathematics, California State University, Sacramento

CSU-LSAMP STATEWIDE OFFICE



PRINCIPAL INVESTIGATOR
Robert Nelsen, Ph.D.
President, California State University, Sacramento

Co-PI, LEAD PROJECT DIRECTOR
Lisa Hammersley, Ph.D.
Interim Dean, College of NSM

Co-PI, ASSOCIATE PROJECT DIRECTOR
Semarhy Quiñones-Soto, Ph.D.
Lecturer, Biology

Co-PIs
David Barker, Ph.D.
Professor, Government
Director, Center for Congressional and Presidential Studies
American University

Shannon Williams, Ph.D.
Executive Director, Institute for Social Research,
Sacramento State

PROJECT MANAGER
Nicole Campos

ADMINISTRATIVE ASSISTANT
Felicia Forte



LEAD AUTHORS & EDITORS
Lisa Hammersley, Ph.D.
Semarhy Quiñones-Soto, Ph.D.

AUTHOR & DESIGN EDITOR
Nicole Campos

ADDITIONAL CONTRIBUTORS
CSU-LSAMP Campus Coordinators
Sacramento State Institute for Social Research

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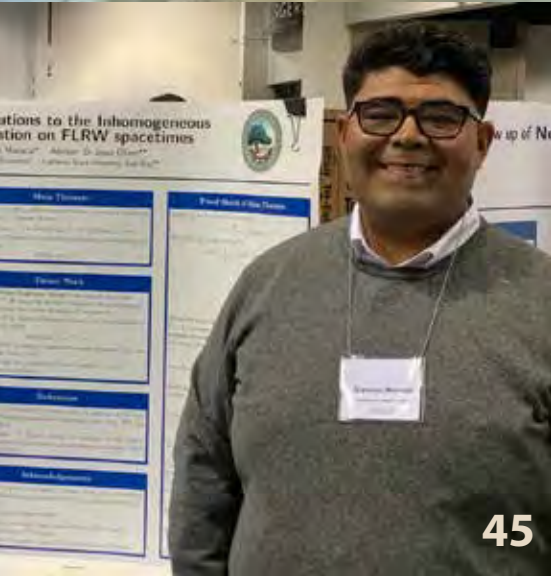
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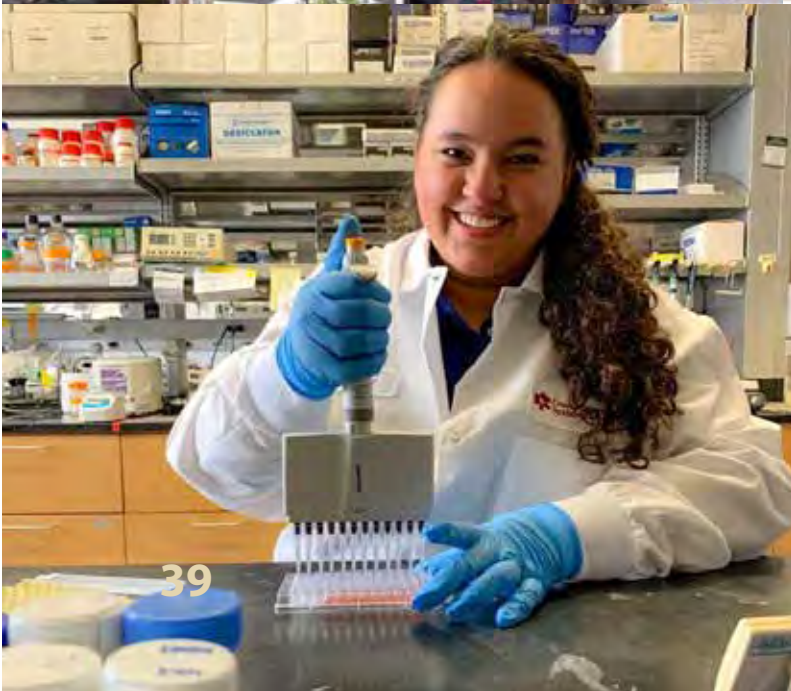
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CSU-LSAMP STEM PATHWAYS AND RESEARCH ALLIANCE: STUDENT SURVEY & COVID-19

Funded by the National Science Foundation and the Chancellor’s Office of the California State University, the CSU-LSAMP Alliance is a coordinated and comprehensive program dedicated to broadening participation in STEM. Over its 27-year history, the CSU-LSAMP Alliance has grown to include all 23 campuses of the CSU, has served 27,784 students, with 23,212 (84%) of these students were from underrepresented minority (URM) groups, and the annual number of participants has increased from 641 in 1994 to 2,828 in 2019. The primary goal of CSU-LSAMP is to enhance the academic and professional preparation of CSU-LSAMP participants for careers in STEM. Currently, our project is on its second year of our sixth five-year cycle of funding, known to us as the STEM Pathways and Research Alliance (SPaRA). The educational research component is well underway, such as:

Annual Student Survey: Second Year of Annual Student Survey

- ISR worked with the Advisory group to refine the current participant student survey for year two and to design and implement a survey of recent graduates of CSU-LSAMP (within the last year).
- Campus Coordinators updated email lists of current students, and identified students who were recent graduates.
- The current participant survey was sent to 2,404 students, 432 responded, and 355 were completed, for a response rate of 15%.
- The recent graduate survey was sent to 962 recent graduates, 46 responded, and 37 were completed for a response rate of 4%.
- The survey included open-ended questions about the impact of COVID-19. ISR is working on analysis of these questions for a white paper on the impact of COVID-19 on CSU-LSAMP participants.

CSU-LSAMP excerpt: Baseline Student Survey Report || October 2020

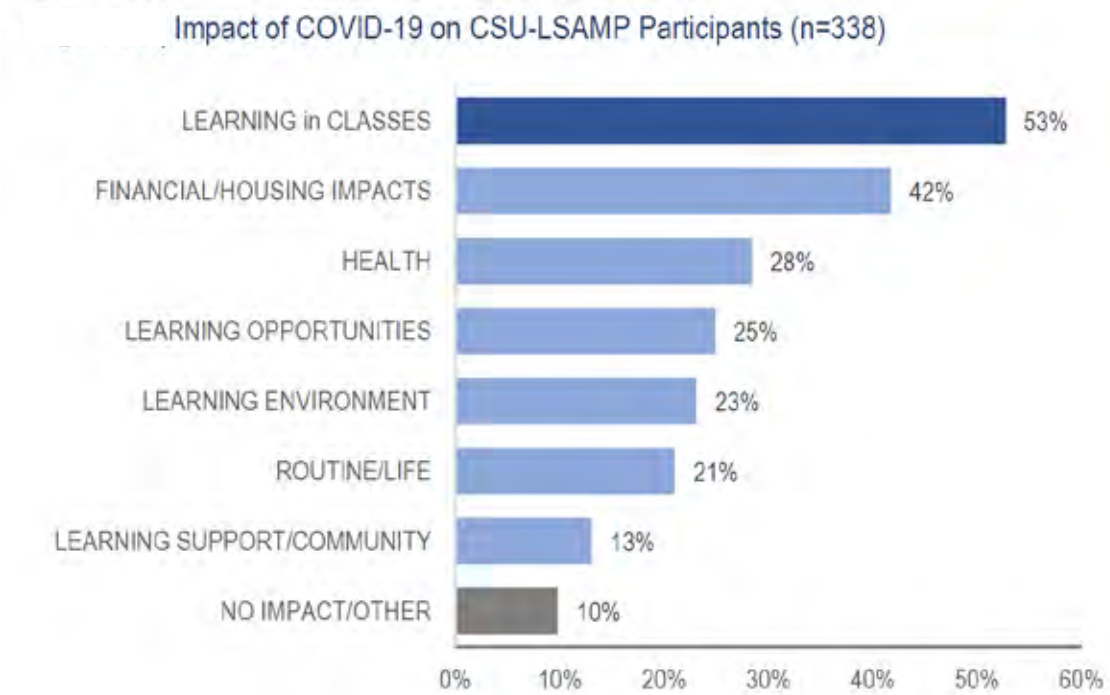
This report presents the results of the second CSU-LSAMP Statewide Student Survey, which was administered in Spring 2020 as a part of the external evaluation of CSU-LSAMP Alliance. The purpose of this survey is to measure students’ perceptions of the program activities and their baccalaureate experience, in addition to short-term outcomes of participating in the CSU-LSAMP program. The short-term outcomes measured by the survey include career aspirations, ease of transition into the academic role, STEM self-efficacy and identity, sense of belonging and racial climate, along with two evaluation measures (evaluation of program effectiveness, and evaluation of campus interaction). A total of 352 students completed the survey which represents 15 percent of the 2,404 CSU-LSAMP students enrolled during the spring 2020 semester.

We are still learning about the impacts of the COVID-19 pandemic on students’ learning experiences and academic success. In March 2020, the CSU Chancellor’s Office instructed campuses to move to virtual instruction due to the COVID-19 pandemic. And while the statewide stay-at-home order in California was necessary to protect public health, this shift in the college experience has presented challenges for the CSU-LSAMP program and its participants. Most CSU campuses will start fall 2020 almost entirely virtual, and these challenges are expected to persist. This survey was administered from April 30, 2020 to May 31, 2020, and it is unknown to what extent this impacted student’s responses to the survey questions.

The CSU-LSAMP Alliance opportunistically gathered student insights at the beginning of the COVID-19 pandemic, before it was apparent that stay-at-home measures and distance learning would be extended mandates throughout the state. Survey findings suggest these necessary public health measures may continue to have negative impacts on student learning and may have disproportionate impacts for URM students who no longer have access to many of the CSU-LSAMP on-campus activities and in-person supports. That is, the pandemic has unexpectedly brought into focus the role and impact of the CSU-LSAMP program on the URM student experience. Moving forward, we intend to use current conditions to explore impacts on sense of belonging, STEM identity, and STEM self-efficacy. This fall, we will administer a follow-up COVID-19 survey to

two cohorts: 1) with the CSU-LSAMP students across the CSU system; and 2) with non-LSAMP students from the College of Natural Sciences and Mathematics at Sacramento State. These cohorts will allow us to compare COVID-19 impacts between STEM students who participate in CSU-LSAMP and those who do not, as well as compare impacts between STEM students who are under-represented minorities with those students who are not.

Impact of COVID-19 on CSU-LSAMP Participants
CSU-LSAMP participants were asked to provide a brief response to the broad question, “How has COVID-19 impacted you?” The ability to learn in classes, financial, and housing issues topped the concerns among CSU-LSAMP participants.



Overall, 74 percent of respondents mentioned that COVID impacted their learning in some way. Forty-two percent of respondents also reported their finances and housing were impacted by COVID-19.

About two-thirds of the CSU-LSAMP students noted that they participated in research supervised by a faculty member outside of a classroom assignment. These students were asked if their research project had been impacted by COVID-19. Seventy percent reported that COVID-19 had impacted their research projects.

Eighty-three percent of respondents had their research projects halted, where the top reason cited was their research being suspended, postponed, or cancelled (in general). Lab closures, inability to get necessary hardware, software, or equipment, social distancing requirements also impacted student research. Twenty-five percent of respondents modified their research in some way, with some students conducting their research virtually and others modifying their research question or research type.

Over a third of the CSU-LSAMP students indicated that their employment status changed because of COVID-19. Almost all of those students reported their finances and workplace being impacted, including: being laid off or losing employment; furloughed or experienced temporary job loss; reduced hours; and student/campus work cancelled. A small percentage of students reported starting a new job.

DIRECTOR SPOTLIGHT:

DR. SEMARHY QUIÑONES-SOTO



Dr. Semarhy Quiñones-Soto started working with the CSU-LSAMP Statewide Office in the Fall of 2016, but her familiarity with the LSAMP program began long before that. As a student at the University of Puerto Rico, Humacao, Dr. Quiñones-Soto was a proud student in the PR-LSAMP program, one of the original “grand AMPs” in the country. As a Co-PI and Associate Director of CSU-LSAMP, Dr. Quiñones-Soto has brought her experience and passion for STEM to bolster the program with her ideas and insight.

Dr. Quiñones-Soto grew up watching her mother mix chemicals, peer into microscopes, and prepare slides for microbiology students at the University of Puerto Rico, Humacao.

The hours she spent in her mother’s lab after school ignited her passion for science, particularly microbiology.

But once Dr. Quiñones-Soto began her doctoral work in the United States, she noticed a lack of female role models, particularly women of color.

“I wasn’t being heard,” she said. “I was being treated differently just because of my gender.” She started thinking about ways she could help increase the visibility and credibility of women in science.

Now a Biology lecturer at Sacramento State, Dr. Quiñones-Soto is combining her love of art and science to promote gender and ethnic diversity in science, technology, engineering and mathematics fields. She creates digital illustrations depicting women of all colors and ethnicities working in STEM, and incorporates the images into prints, stickers, and other items that she shares on social media and sells online.

The illustrations have gained widespread attention in recent months, most recently appearing in a coloring book Dr. Quiñones-Soto produced and published that in its first three weeks on Amazon sold more than 250 copies. Her artwork also has been featured on the cover of a neurosciences journal.

Dr. Quiñones-Soto said she hopes that women will recognize themselves in her images, and that the artwork will inspire young females to pursue careers in STEM.

“For me, it is important to represent women in STEM

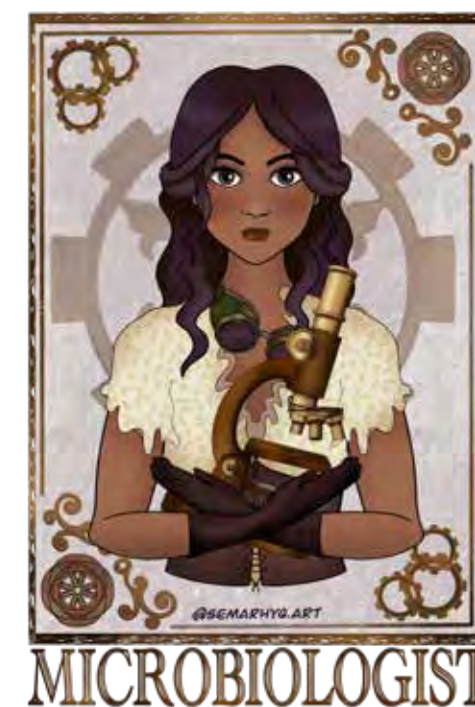


because you cannot be what you cannot see,” she said. “I’ve always loved to draw, but now I am drawing with a purpose.”

Although more women are pursuing careers in science, they remain underrepresented. According to the National Science Foundation, Black women represent 12.2% of the female population in the United States, but hold only 4.2% of science doctorates. Latinx women represent 13.7% of females in the U.S. population, but hold just 5.8% of doctoral degrees in science.

The coloring book has taken the project to a new level, as STEM scholars and faculty members and aspiring scientists share their excitement on social media. The front cover of the publication, *Types of Scientists: A Coloring Book for All Ages*, features digital art images of women of various ethnicities and cultures as well as laboratory symbols and tools. Dr. Quiñones-Soto dedicates the book to “my mom and all women in science.”

In addition to offering images to be colored, the book discusses different scientific fields and offers information about jobs and careers for current and future scientists. During its first two weeks on Amazon, it was



listed as the company’s No. 1 new release in the Science and Technology Teaching Materials category.

Dr. Quiñones-Soto’s images also are featured on the cover of the latest issue of the *Journal of Neuroscience Research*. The artwork and its underlying message about inclusivity in science has prompted social media responses from across the United States and as far away as Germany and Australia.

“People are contacting me with the most amazing comments,” said Dr. Quiñones-Soto. “They are saying, ‘This is the first time I’ve ever seen anything that looks remotely like me.’ They send me messages out of nowhere, and it makes me cry.”

Dr. Quiñones-Soto said the project has given her “a sense of belonging that I didn’t get in science alone. It’s opened up a world where I never knew I belonged. It’s given me a sense of purpose and the ability to make a difference.”

Dr. Quiñones-Soto’s work with the CSU-LSAMP Statewide Office has included reporting through WebAMP to the NSF, Bridge to the Doctorate site visits and reports, creates PROUD publication content, is part of the Educational Research Committee, and does a variety of other duties as her role as Associate Project Director.

Dr. Quiñones-Soto’s artwork can be found by following her instagram @semarhyq.art.

Some excerpts courtesy of Sacramento State News



OUTSTANDING ALUMNA
JAIME DIAZ • PHYSICS

While Jaime Diaz majored in Physics at CSU-Channel Islands, he took up every opportunity he encountered. He worked with Dr. Veldmann in the chemistry department on field effect transistors to model wavefunction for the pentacene molecule and worked on organic semiconductors that play a role in photovoltaics. He also worked in the physics department with Dr. Wood to write a program that could model chaotic properties of spin glass and on the design and fabrication of a low cost air quality detector to measure and gather data on a variety of gases, temperature, and humidity at the Santa Rosa Island Experimental Station. In addition to research, his extracurricular activities in the physics department included a project to convert a storage unit into an observation room for an observational astronomy course as well as star parties hosted by the applied physics department. He also represented the physics department at the annual science carnival, which is held to reach out to the community and inspire future generations to learn about the STEM field. He demonstrated simple kinematic and thermodynamic phenomena in this carnival for the past 4 years and hopes to participate in STEM outreach during graduate school. Jaime also tutored math and physics for 3 years at the STEM Tutoring Center. Following his dream of pursuing interdisciplinary research in an inclusive environment, Jaime Diaz is currently a Ph.D. student in the Applied Physics and Material Science Program at Northern Arizona University.



Campus Coordinator(s):
Caryl Ann Becerra, Ph.D.
Lecturer, Biology
(805) 437-2774
carylann.becerra@csuci.edu

Christine (Chris) Opzeeland
CSU-LSAMP Coordinator
(805) 437-2641
christine.opzeeland627@csuci.edu



OUTSTANDING ALUMNA
CARMEN-JEANETTE STEPAC • PHYSICS

As a Fulbright Scholar, Carmen-Jeanette Stepek is pursuing a doctorate in neuro-physics at the Royal College of Surgeons in Ireland. Having double majored in Applied Physics and Mathematics at CSU-Channel Islands, Carmen plans to work on artificial intelligence to decode tissue samples from people with neurodegenerative diseases like Parkinson's, Alzheimer's, and Lou Gehrig's. Carmen hopes to use applied physics and computational approaches to medicine. Undaunted by being a woman in a male-dominated field and a woman of color, having African American and Polish roots, Carmen participated in a variety of research projects while at CSU-Channel Islands. She did research in both the physics and math department on non-local decomposition of seismic waves with Dr. C. Flores in math and on electrogenesis of weakly electric fish with Dr. Rasnow in physics. Then in the summer of 2019 for 10 weeks, she was part of a research group on thermodynamics and energetics of quantum systems in Trinity College in Dublin, Ireland. The Material Research Lab at the University of California, Santa Barbara's CISEI program arranged this experience. A tenacious and passionate researcher, Carmen's drive for research stems from her personal experiences. As a first-generation, multiracial female in physics, her ultimate goal to become a pediatric neurologist is rooted in her values as a global citizen committed to medical research.

OUTSTANDING ACADEMIC, RESEARCH IN STEM,
& SERVICE/LEADERSHIP

CHASE KHEDMATGOZAR • BIOLOGY

Not only did Chase Khedmatgozar graduate summa cum laude, he won the Biology Program Honors Award at the CSU-Channel Islands Commencement. At CSUCI, Chase was a peer-led teaching leader and held workshops in Calculus, Biology, and Chemistry. When asked to share what his greatest memory of CSUCI to the LSAMP members at our closing event, he said that he was most proud of the fact that no one he was responsible for in the last 2.5 years received anything lower than a "C." He exclaimed, "They all passed;" meaning they are closer to graduating, would not have to spend more money retaking a course or two, and maybe they will want to major in STEM. This is quite a big service to our community where our student population is mostly first-generation, Latinx, and socially and economically disadvantaged.

For 2.5 years, he investigated the neuronal signaling molecules and neuronal networks that mediate sensory-dependent decision-making in the nematode, *C. elegans*, by using a reverse genetics approach. He worked on three projects in Dr. Gareth Harris' neuroscience lab at California State University Channel Islands (CSUCI) culminating in a presentation at the Emerging Researchers National Conference in Washington, D.C. and the World Congress on Undergraduate Research, which had over 200 undergraduate students representing forty countries, and held in Oldenburg, Germany. Chase was accepted into the NIH PREP at the University of Massachusetts, Amherst. He plans to obtain his Ph.D. so that he can become a researcher to find a cure to neurodegenerative diseases.



OUTSTANDING ACADEMIC

ALEX HERNANDEZ • MECHANICAL ENGINEERING

Growing up Alex Hernandez had a fascination for how the world around him worked. He made the decision to attend college because he knew that higher education would provide him with many opportunities and lead to a better life. His love for math, combined with his passion for science and his curiosity about how the world works, led him to major in mechanical engineering and minor in mathematics at CSU Chico. As a first-generation student, Alex initially struggled to navigate college life but his drive for learning kept him motivated to succeed. In addition to having been on the Dean's List every semester since enrolling at CSU Chico in Fall 2017, Alex was recognized as Student of the Year (2018-2019) by the MESA Engineering Program. He has also received several LSAMP Merit Awards. During the summer of 2019, Alex conducted research on the aerodynamics of wind turbine airfoils with Dr. David Alexander in the Department of Mechanical and Mechatronic Engineering and Sustainable Manufacturing. He used the CSU Chico closed-loop wind tunnel to improve testing procedures by measuring drag forces on 2D & 3D objects and comparing them with published data. Alex also utilized his design skills in several technical projects including a hoist and winch manufacturing project. In Spring 2019, he participated in the Formula Society of Automotive Engineers Competition. His short-term goals include graduating in Spring 2022 and earning his doctorate in mechanical engineering. His long-term career goals include being a part of the SpaceX Mars program.



OUTSTANDING RESILIENCE & PERSISTENCE IN STEM
NANCY MARTINEZ • CELLULAR & MOLECULAR BIOLOGY

As a first-generation student with immigrant parents, Nancy Martinez knew that attending college would lead to a better future for herself and her family. It was also important to serve as a role model for her two younger brothers. Nancy entered college intending to become a physician but soon became interested in medicinal chemistry. Nancy showed resilience by staying committed throughout her education while working part-time as a physical therapy assistant and taking difficult classes. She discovered her passion for research during the summer of 2017 while working with Dr. Daniel Edwards on the enzymatic breakdown of polyhydroxybutyrate, a naturally occurring polymer that serves as a biodegradable thermoplastic. After graduating from CSU Chico with a BS in Cellular and Molecular Biology and Microbiology, Nancy applied to postbaccalaureate programs to gain additional research experience, build her confidence, and strengthen her application to graduate school. Despite not being accepted into a program, Nancy was determined to move forward. She applied for laboratory assistant positions to further develop her skills and stay current in her field. After working for a year at WestPac Labs, she was accepted into the Chemistry MS program at Fresno State, where she is studying the use of CDK9 inhibitors as a treatment for prostate cancer. Nancy's career goals are to earn a PhD in medicinal chemistry and serve as a mentor and role model for minority students who aspire to pursue a career in STEM.

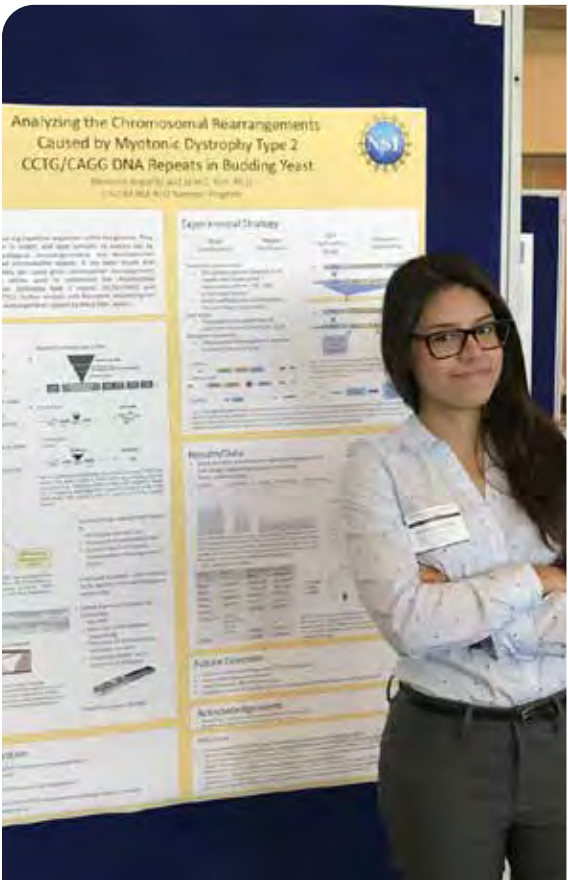


Campus Coordinator:
Lorena Navarro, Ph.D.

Natural Sciences Coordinator, Chico STEM Connections Collaborative
(530) 898-5233
lnavarro16@csuchico.edu

OUTSTANDING ACADEMIC

BERENICE ARGUELLO • CELLULAR & MOLECULAR BIOLOGY



Berenice Arguello grew up in the Central Valley where many Latinos work as migrant field workers and day laborers. She has seen firsthand how low expectations and limited opportunities can discourage students from higher education. She has demonstrated perseverance and cheerfulness in the face of economic and social obstacles. Berenice's interest in molecular biology began in high school while she was conducting a year-long research project on the effects of a recovery method for mid-distance running on intramuscular inflammation. As a freshman cellular and molecular biology major at CSU Chico, she was accepted into Dr. Kristen Gorman's laboratory to work on the genetic and cellular causes of idiopathic scoliosis. During the summer of 2019, Berenice participated in the CSU San Marcos NSF REU Program under the mentorship of Dr. Jane Kim. Her research involved analyzing the chromosomal rearrangements of Myotonic Dystrophy type 2 DNA repeats in budding yeast. Berenice has also taken on several leadership roles including serving as a Supplemental Instruction Leader for organic chemistry and a biology Learning Assistant. She is the secretary for the Pre-Medical Association, served on the Student Learning Fees Committee, and served as the programming director for the Chico Pride Club. Berenice has been volunteering at the Shalom Free Clinic since September 2018. According to her supervisor at the clinic, Berenice "has shown immense curiosity, willingness to accept challenges and an optimistic can-do attitude about the process of caring for those in need." She is deciding between applying to graduate school or medical school.

OUTSTANDING RESEARCH IN STEM
JUAN CARAVEZ • CHEMISTRY

Juan Caravez has been active in research throughout his undergraduate career. While attending Butte Community College, he was part of a research team monitoring the efficiency of a 300' bio-swale located on a wildlife refuge. During the summer of 2018, under the supervision of Dr. David Ball at CSU Chico, he conducted research on the development of a synthetic route to synthesize a degradate of the insecticide chlor-antraniliprole for use as an analytical standard. To pursue his interest in medicinal chemistry, Juan joined Dr. Craig Lindsley's lab at the Vanderbilt Center for Neuroscience Drug Discovery. His research involved optimizing small tool molecules as potential therapeutic treatments for neurodevelopmental disorders such as Rett Syndrome. Juan's honors research involved investigating potential synthetic routes to produce durynes and homologues for use in biological studies. He has presented his research at local, regional and national conferences. His academic achievements include the ACS Division of Organic Chemistry Outstanding Graduating Senior in Organic Chemistry Award, LSAMP Student Research Scholar, and ACS Student Scholar Award. Juan is passionate about encouraging future scientists to pursue their dreams. He served as a STEMCAT Mentor for first-generation freshmen STEM majors, served on student research panels, and served as a tutor for the MESA Program at Butte Community College. Juan graduated with a BS in Chemistry, with honors, in May 2020. He is now a first-year PhD student at UC Santa Barbara, studying organic chemistry. He plans to become a research scientist in the field of drug development and discovery.





California State University DOMINGUEZ HILLS



OUTSTANDING ACADEMIC

STEPHANIE GASTON MATHEMATICS

Stephanie Gaston entered CSU Dominguez Hills as a Presidential Scholar. These very prestigious merit-based awards are given to a small group of new students each year and provide a full scholarship. This has allowed Stephanie to better focus on her studies and research and she has done exceptionally well. She has a perfect 4.0 GPA at Dominguez Hills and is also a McNair Scholar.

In the summer of 2018, Stephanie did her first REU at the Rochester Institute of Technology and this work resulted in a publication: "Graphs with large rank numbers and rank numbers of subdivided stars" (co-authors: Dr. Jobby Jacob, Hayley Boynton, Ethan Burroughs) in AKCE International Journal of Graphs and Combinatorics. Stephanie has another publication stemming from her 2019 summer REU: Dillon, T. and Gaston, S. "An average of generalized Dedekind sums" in the Journal of Number Theory. Stephanie has given presentations of her research at several national conferences.

Stephanie graduated in May, 2020 and entered math PhD program at UC Davis in September. She eventually plans to become a university professor.

OUTSTANDING RESEARCH IN STEM

VINCENT TRAN COMPUTER SCIENCE

Vincent transferred from El Camino College as a computer science major in fall 2015. He is a first-generation college student who became interested in research after taking upper division math courses, and soon after expanded his computer science major into a math double major. During his undergraduate studies, Vincent's research output was amazing: locally at our CSU Dominguez Hills, he worked on separate research projects with math and computer science professors. He was invited to and presented his work at two international conferences. For three years in a row, Vincent participated in NSF-funded REUs where he continued to expand his research portfolio. He is interested in cybersecurity, has taken a cryptography class and worked as a teaching assistant in statistics. All these accomplishments have been done while being a full-time student working three jobs to support a family. Vincent graduated this past spring semester and was accepted to multiple PhD programs. He will be entering the PhD program in Computer Science at UC Riverside under the Dean's Distinguished Fellowship Award.



Campus Coordinator:
Alexander Stanoyevitch
Professor of Mathematics
(310) 243-3905
astanoyevitch@gmail.com

CALIFORNIA STATE UNIVERSITY EAST BAY

OUTSTANDING MATH, VISION, AND COMMITMENT TO THE DISCIPLINE GREGORY MWAMBA MATHEMATICS

J Growing up, Gregory's family moved around a lot, moving to multiple cities in three different countries: D.R. Congo, South Africa, and the US. Nevertheless, there was one thing that remained constant, no matter where Gregory lived: math. To him, math grew from being just something he loved into something he loved and a tool; math was a way to express himself and to communicate with people from all over the world to an extent that language alone could not. This realization ignited a desire to pursue a PhD in math.

It became evident to Gregory that in order to pursue a PhD in math, he needed to get additional outside-of-the-classroom math experiences to strengthen his applications. Noticing Gregory's affinity for math, some professors suggested he apply for scholarships to help alleviate some of his financial burdens, which would then allow him to spend time in extracurricular math activities and research. Greg is now a CSU-LSAMP PROUD Scholar as well as a Scholar in the Cal State East Bay's Center for Student Research Scholar's Program, the latter of which he has earned the designation of "Forever Pioneer Scholar", a designation reserved for the Program's top 15% of students.

In pursuing a PhD in mathematics, Gregory wants to make a significant contribution in the field: "I want to show people all around the world that there's more to math than counting/arithmetic, fancy symbols and fancy formulas ... " Greg wants to teach people that math is a universal language that can be shared between all people.

Campus Coordinator:
Jenny O Ph.D.
Associate Professor, Kinesiology
(510) 885-2907
jenny.o@csueastbay.edu

OUTSTANDING PERSISTENCE & SELF-INITIATIVE NATHANIEL ISLAS • COMPUTER SCIENCE

As a child, Nathaniel had a profound interest in science and dreamt of being a scientist making world-changing discoveries. However, life experiences and circumstances growing up convinced Nathaniel early on that those aspirations were not for someone with the life experiences that he had: "I'm a Latino that comes from a working-class family. My father is an HVAC technician, and my mother dropped out of high school. A week before my first semester of community college, my father and step-mother separated. Since I was 18 years old, I have become a one-person support system taking care of myself financially."

At community college, Nathaniel decided to study computer science. He often encountered self-doubt, rooted in his experiences as a Latino first-generation college student in a discipline where there were few others that he felt he could relate. In the face of many obstacles, Nathaniel made a deliberate decision to focus on school. Resultant from his commitment to his future, Nathaniel has flourished at Cal State East Bay, owning his space in higher education and his right to academic and professional development. Most recently, he has participated in a Stanford University internship, received a "Latinos in Technology" Scholarship, is involved in two student research University programs, and has developed professional relationships with faculty who have offered to help mentor him. After completing his undergraduate degree, he intends to pursue a PhD in computer science.

Nathaniel aspires to work on AI in healthcare and, more specifically, its application to personalized medicine, cancer research and treatments, and genomics.

OUTSTANDING COMMITMENT AND PASSION TO PERSONAL AND PROFESSIONAL DEVELOPMENT SANDRA TORRES • COMPUTER SCIENCE & MATH

Growing up, Sandra's parents (both from Mexico) strongly encouraged their children to pursue a college education. During her time at Easy Bay, financial concerns arose, almost forcing Sandra to drop out. Instead, she expended time and effort in securing scholarships to pay for her education.

Sandra is a woman in predominantly man-dominated fields (computer science and mathematics). She notes, for my computer science courses, there were few other female classmates. Despite these challenges, Sandra has thrived at Cal State East Bay. She was a campus Sustainability Ambassador and a highly active member and officer of the Recreational Math & Computer Science club. Sandra was also a "Scholar" in the Cal State East Bay Center for Student Research Scholar's Program (CSR). Sandra achieved the highest level in the program; the 'Forever Pioneer Scholar' level, a designation only offered to a maximum of 15% of Scholars in any given year.

Sandra began as a computer science major, and added mathematics as a second major. Sandra's mathematics work at East Bay involved using the fractal shape, the Sierpinski's Gasket, as the foundation for exploring the mathematical-based puzzle game, 'Towers of Hanoi'. Her faculty mentor, Dr. Arauza-Rivera challenged Sandra to identify mathematical relationships between the game and the fractal shape. Sandra found this work to be extremely rewarding, in terms of helping her develop her mathematical expertise and thought processes, as well as with respect to the relationship she has formed with her faculty mentor. After graduating, Sandra plans to take a gap year before pursuing a Ph.D. in Mathematics.



OUTSTANDING RESEARCH IN STEM

NICOLE LEON • BIOLOGY

Nicole graduated from Fresno State with a B.S. in Biology and a minor in Chemistry in May, 2020. Nicole began her undergraduate research in February, 2017 with cancer biologist Dr. Jason Bush where she contributed to a novel breast cancer metabolomic study. Nicole's research was focused on better understanding the biochemical impact of HER2 on breast cancer metabolomics and the associated mechanisms. Under the mentorship of Dr. Bush and in collaboration with her lab mate, Sarah Abuelreic, Nicole was able to successfully identify pathways associated with metabolic reprogramming of nonessential amino acids. More specifically, they identified glycine and serine as the most significant pathways, which are known to support the altered metabolism and inefficient production of energy via aerobic glycolysis in breast cancer cells; thus, promoting tumor growth and progression. The ultimate goal of this project is to exploit these discoveries for metabolic targeting as a therapeutic strategy against HER-2 positive breast cancer cells. Nicole was also able to complete a National Science Foundation REU at the University of Notre Dame, under the mentorship of Dr. Siyuan Zhang and graduate student Farya Chattergoon, where she contributed to an ongoing project developing novel therapeutics for patients with triple negative breast cancer. Nicole is continuing her education in the Quantitative and Systems Biology doctoral program at the University of California, Merced under the mentorship of Dr. Gabriela Loots and Nicholas Hum where she is working on developing better diagnostic tests for patients with triple negative breast cancer.



OUTSTANDING RESEARCH IN STEM

JALEN HARRIS • MECHANICAL ENGINEERING

In May 2020 Jalen Harris completed his M.S. in Mechanical Engineering from Fresno State with a 4.0 GPA. Jalen was the recipient of the Lyles College of Engineering Graduate Dean's Medal and the University President's Graduate Medal. Jalen previously completed his bachelor's degrees in both Mechanical Engineering and Mathematics in May 2018, also at Fresno State. Starting early in his undergraduate career Jalen began conducting research in materials science under the direction of Dr. Sankha Banerjee. He continued this work throughout his undergraduate and graduate career, contributing to three peer reviewed papers in materials for solar energy applications. Jalen also participated in research in applied mathematics and statistics, working with Dr. Steve Chung, resulting in published work conducting statistical analyses of patterns in foreign exchange rates. Jalen later participated in the North Carolina State University Industrial and Applied Mathematics REU. He presented his work at various national conferences including the Materials Research Society national meetings and the Joint Mathematics Meetings. Jalen has also served as a member and officer of the National Society of Black Engineers and as a Mathematics outreach fellow where he looked to provide guidance and community to other underrepresented students like himself. Jalen is continuing his love of science, engineering and mathematics pursuing his PhD in Materials Science and Engineering at Cornell University where he uses Quantum Mechanics, Computation, and Group Theory to determine key material properties of Metal Organic Frameworks. His future goals include becoming a professor and helping inspire other minority students to pursue careers within STEM and in academia.



OUTSTANDING ACADEMIC

BAILEY SANCHEZ • BIOLOGY

Bailey-J Sanchez graduated from Fresno State in May 2020 with a B.S. degree in Biology and a minor in Chemistry with Summa Cum Laude honors. Prior to transferring to Fresno State, he attended Madera Community College where he also graduated with highest honors in May 2017. Early on in his academic journey at Fresno State, Bailey obtained his first research experience, with the assistance of the CSU-LSAMP program, under the mentorship of Dr. Mark Stecker and Dr. Ana Dutra Clarke, University of California San Francisco Fresno. Bailey's research involved extracting sciatic nerves from mice and exposing the nerve to differing conditions such as anoxia and hypoxia to visualize effects on nerve function. During his research experience with Dr. Stecker and Dr. Dutra Clarke, Bailey was involved in the development of new experimental apparatuses. During 2019-2020 academic year, Bailey conducted undergraduate research under the mentorship of Dr. Slade at Fresno State where he analyzed beta defensins in the immune response to West Nile Virus in American Robins. While performing this research, he earned a faculty-sponsored student research proposal award and presented his work at a campus research symposium. As an undergraduate, Bailey not only was involved with undergraduate research but also worked as a microbiology and human biology tutor assisting community college students. Bailey is continuing his studies as a PhD student at University of California Merced, under the mentorship of Dr. Juris Grasis and Dr. Rudy Ortiz, where he examines the effects of COVID-19 after recovery from the virus and its role in both the Renin-Angiotensin system and endothelial cell inflammation. Bailey's future goals, after obtaining his PhD, include becoming a professor and researcher.



OUTSTANDING ACADEMIC

TAYLOR SANCHEZ • BIOLOGY

In May 2020 Taylor-J Roy Sanchez graduated from Fresno State with a B.S. degree in Biology and a minor in Chemistry with Summa Cum Laude honors. After transferring to Fresno State from a local community college, Taylor became active with several campus STEM programs, including CSU-LSAMP. He volunteered as a University of California San Francisco Fresno Research Associate at Community Regional Medical Center. In this position, Taylor worked in the emergency department collecting test data to potentially develop more time efficient methods of clinical testing in the emergency department. As an undergraduate, Taylor was involved in neurophysiology research under the mentorship of Dr. Mark Stecker with University of California San Francisco Fresno where he helped monitor the effects of several neurological diseases within the sciatic nerve. Taylor also participated in immunology research under the mentorship of Dr. Joel Slade working with the Major Histocompatibility Complex (MHC) using blood samples from American Robins. Taylor is continuing his education as a doctoral student at the University of California Merced where his work will include research in genome rearrangement, parasitology, and virology. Taylor's goal is to become a professor to instruct and mentor students with similar aspirations.

Campus Coordinators:

Lilia De La Cerda, M.P.H.
Coordinator/Director, CSU-LSAMP
Fresno State
(559) 278-4748
liliad@csufresno.edu

Joy Goto, Ph.D.
Professor, Chemistry & Biochemistry
(559) 278-2103
jgoto@csufresno.edu



CALIFORNIA STATE UNIVERSITY FULLERTON™

OUTSTANDING RESEARCH IN STEM MARIA DIAZ COMPUTER SCIENCE

Maria Diaz graduated from California State University Fullerton with a bachelor of science in computer science with a minor in mathematics in the Spring of 2020. She was a CSU-LSAMP research scholar for 2 semesters. She was in Dr. Behseta and Dr. Fry-Petit's machine learning lab. Maria also performed research under the mentorship of Dr. Anand Panan-gadan in the Computer Science department. Maria is currently attending Clemson University in South Carolina for her Master of Industrial Engineering and is a graduate research assistant in a lab that combats human trafficking. Her long-term goal is to develop effective interdiction methods using applied mathematics and technology.

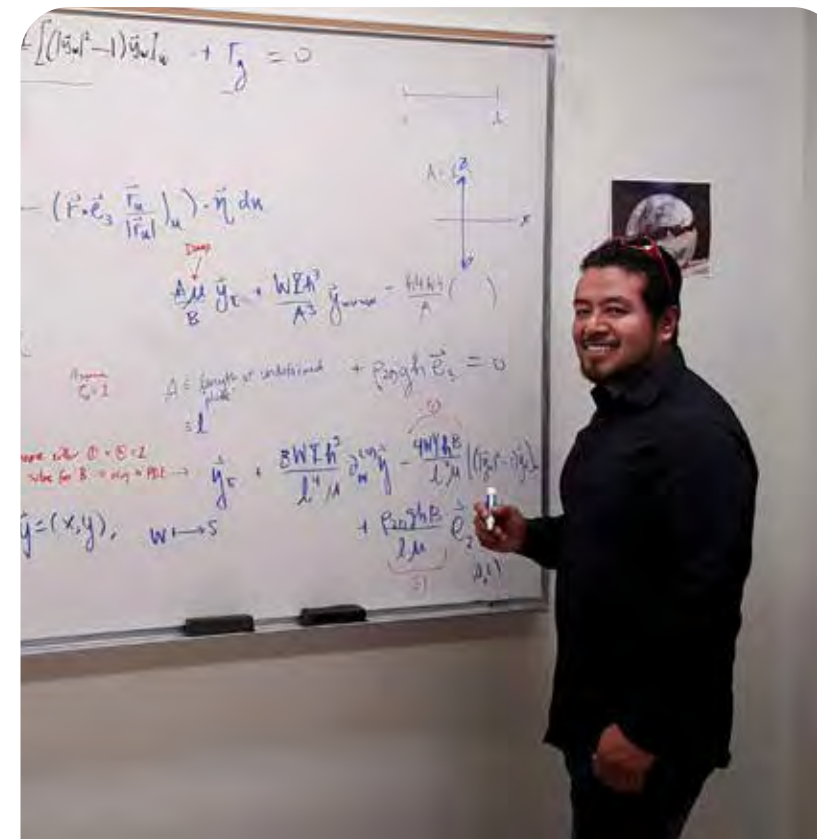


OUTSTANDING RESEARCH IN STEM FRANCISCO AREVALO COMPUTER ENGINEERING

Francisco Arevalo graduated in Spring 2020 as a Computer Engineering major at California State University, Fullerton. Francisco worked under Dr. Yu Bai for his self-navigating drone research project and had been working with Dr. Bai since Spring 2019. Francisco's work involved the construction and design of a drone from the ground up to aid in transportation of a load through self-navigation. Francisco was the team leader of Titan Sentinel and worked alongside three other group members. He and his team managed to assemble a flying, stable drone within three months. Before Francisco graduated, he and his team were working to bring powerful functions to Sentinel with various innovative approaches. These approaches include machine learning, 3D printing, and natural language processing. Francisco used CSU-LSAMP funds to provide Sentinel a brain, with the inclusion of a Raspberry Pi and spare parts for unexpected landings. Francisco hopes to pursue a career in software engineering and hardware design. He would like to strengthen his skills in the Computer Science aspect of his degree.



OUTSTANDING COMEBACK GABRIEL MARTINEZ APPLIED MATHEMATICS



Gabriel Martinez participated in CSU-LSAMP @ Cal State Fullerton since Fall 2017 and moved on to become a CSU-LSAMP Research Scholar during his last two years as an undergraduate student. One of his research projects consisted of elasticity and asymptotic reductions for thin sheets under the mentorship of Nicholas Brubaker, Ph.D., from the department of mathematics. Gabriel has been interested in dispersive equations because they describe the propagation of waves for a certain medium, such as the energy of elastic surfaces, which could lead to properties of interactions at the quantum level. He presented his research at the Undergraduate Research Symposium of the College of Natural Science and Mathematics at CSUF. He will be completing his Master's in mathematics at the California State University, Fresno. His prior research has led him to take on a project in functional analysis at Fresno State, where he will be working with Dr. Marat Markin.

OUTSTANDING ACADEMIC TINA JAMSHIDI ARAGHI • ACTUARIAL MATHEMATICS

Tina Jamshidi Araghi, who transferred to CSUF as a Mathematics major - minor chemistry- in 2018 and obtained her bachelor's degree in actuarial science in Spring 2020 with a 3.8 GPA. Since 2016 Tina has been working as a math and chemistry tutor, first at Fullerton College and later at CSUF. Tina is now pursuing a master's degree in statistics and will combine her interests in mathematics by performing research in the next semester with Dr. Zair Ibragimov. Tina also did research in Dr. Andrew Petit's computational lab last summer which is called and published as "Structure-Photochemical Function Relationships in Nitrogen-Containing Heterocyclic Aromatic Photobases Derived from Quinoline".



Campus Coordinator:
Zair Ibragimov, Ph.D.
Professor of Mathematics
657-278-2741
zibragimov@fullerton.edu

HUMBOLDT STATE UNIVERSITY

OUTSTANDING RESEARCH IN STEM, & SERVICE/LEADERSHIP CHRISTIAN TRUJILLO • ENVIRONMENTAL SCIENCE & MANAGEMENT



Christian Trujillo is a senior at HSU studying Environmental Science & Management with an emphasis in Education and Interpretation. Christian is active in the community both on and off campus. He founded Ciencia Para Todos, an organization where students create Spanish language science programs for English Language Learners (ELL) with the goal of increasing the diversity of future science students. Christian has also tutored ELL students and given back to his community in San Francisco by distributing information about COVID-19 resources and science coloring books to children.

Christian is a leader on campus at El Centro, the Latinx Center of Academic Excellence, where he facilitates spaces for Queer-BIPOC students, and at the Indian Natural Resources, Science & Engineering Program (INRSEP), where he facilitates a working group for Society of Chicanos and Native Americans in Science (SACNAS) members to discuss the intersection of science and culture. Christian has conducted educational research for the Geoscience Alliance Research Coordination Network under the direction of Dr. Nievita Bueno Watts at HSU, and for the NASA PSYCHE Mission with Dr. Cassie Bowman, Arizona State University. He presented his work at SACNAS and American Geophysical Union national conferences as well as Sustainable Land and Water Resources REU and INRSEP Research Symposiums. Christian plans to pursue a Master of Public Health in Environmental Science followed by a PhD. His goal is to become a professor so he can influence science education in a way that makes it open and accessible to diverse communities.

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP MADISON LALICA • BOTANY



Madison Lalica is a senior Botany major of Native Hawai'i and Asian descent who was born and raised in Honolulu, Hawai'i. Madison conducts research in a paleobotany laboratory where she studies 400-Million-Year-old plant fossils under the direction of Dr. Alexandru Mihai Tomescu. Her research skills include making thin sections of rocks, slide preparation, microscopic observations, and image acquisition and processing. Madison has presented her research at the Botanical Society of America and Society for the Advancement of Chicanos and Native Americans in Science national conferences, and the Sustainable Land and Water Resources REU and the HSU Indian Natural Resources, Science & Engineering Program Research Symposiums. She is the first author of two peer-reviewed journal articles in the International Journal of Plant Sciences. Madison serves as the primary botany tutor at the HSU Learning Center, where she helps others find beauty in learning about plants and the natural world. Other volunteer efforts include the HSU Natural Resources Club and Global Student Embassy community service program in Nicaragua, focusing on farming and sustainable agriculture. Madison lives by the philosophy that we should care for and nurture the land, which stems from her Hawaiian culture. To do this she plans to pursue a PhD in Botany with the end goal of becoming a professor. Ultimately Madison wants to facilitate research and give other underrepresented individuals the chance to succeed in science. Madison wishes to express her gratitude for all of the opportunities she has received through the help of her numerous mentors.

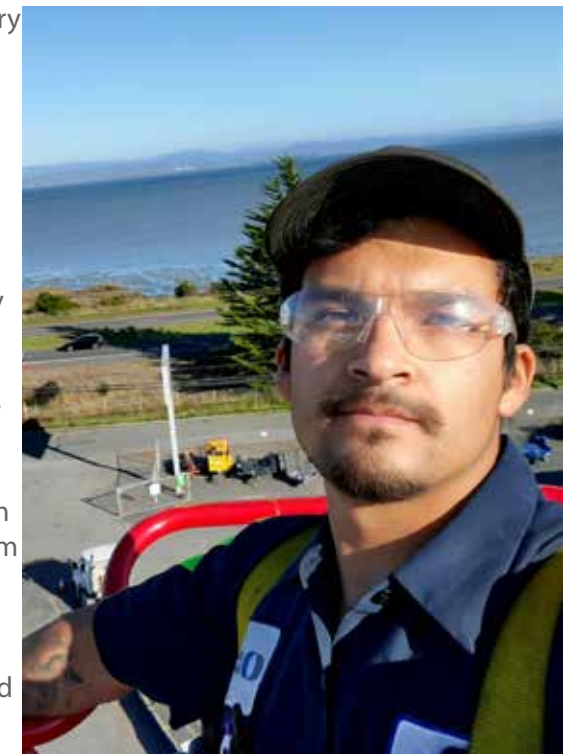
OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP FLOYD CLARK • ENVIRONMENTAL SCIENCE & MANAGEMENT



Floyd Clark is an Environmental Science & Management major with a concentration in Ecological Restoration and Forestry minor. Floyd has a passion for plant science and forest ecosystems. He takes great pride in his Native Alaskan heritage as a member of the Tlingit Tribe and plans to use his education to restore and protect his ancestral lands in Lingít Aaní (Southeast Alaska). In the summer of 2019, Floyd served as a Forestry intern with Sealaska Timber Company, where he worked on restoration sites, silvicultural prescriptions, and harvest operations throughout Southeast Alaska. During summer 2020, Floyd conducted research through the National Center for Earth-surface Dynamics Sustainable Land and Water Resources (SLAWR) REU. He helped to construct a relational database of salmonid data from the Trinity River and surrounding tributaries for the Yurok Nation. This work is particularly important as salmon is a first food for many tribal communities, and this work may serve as a model to further efforts at tribal self-determination and sovereignty. Floyd has presented his research at the SLAWR REU and the HSU Indian Natural Resources, Science & Engineering Program Research Symposiums. Floyd served as a mentor for Native American youth through Two Feathers Native American Family Services and taught science in elementary schools through Blue Lake Rancheria's Pathmakers program -- which integrates Native American tribal knowledge, cultures, and languages with Western science, technologies, and tools. Floyd plans to pursue a PhD in the application of traditional indigenous ecological knowledge to restoration ecology in Alaska.

OUTSTANDING RESEARCH IN STEM STEPHEN GALINDO • GEOLOGY

Stephen Galindo is a senior Geology major with a minor in Chemistry and scientific diving and interest in geospatial mapping. Stephen transferred to HSU after from Pasadena City College. As a first-generation college student, he has not had many role models to help guide him through the challenges of attending college while working full time, so appreciates the guidance he receives from CSU-LSAMP @ HSU, where he learned about summer Research Experiences for Undergraduates (REU). During summer 2020 Mr. Galindo conducted research on Nitrogen Cycling in the Yucatan Karst Subterranean Estuary under the direction of Meagan Gonneea of the US Geological Survey. During this project Stephen analyzed data on the geochemistry of coastal springs and learned to use computer language coding software (R Studio). Stephen has presented his work at the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) national conference, Woods Hole Virtual Partnership Education Program 2020, and HSU Indian Natural Resources, Science & Engineering Program Research Symposiums. Stephen was also selected to participate in the 2020 Geo-Futures program at the SACNAS conference and nominated by faculty to participate in Ignite! Stephen's research interests include geochemistry, marine geology, karst topography, mid-ocean ridges, and hydrothermal vents. Stephen plans to pursue a PhD in Marine Geology.



Campus Coordinator:
Nievita Bueno Watts, Ph.D.
Director, INRSEP & Diversity in STEM Program
(707) 826-5641
nievita.bueno.watts@humboldt.edu

CALIFORNIA STATE UNIVERSITY LONG BEACH

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP ABBAS ABDULHASAN • MOLECULAR CELL BIOLOGY & PHYSIOLOGY



Abbas Abdhulhasan is a junior majoring in molecular cell biology and physiology at CSU Long Beach. Abbas has maintained a 4.00 cumulative GPA and has been heavily involved in research. He started his research journey as a freshman in the Undergraduate Research Services (OURS) Connects program and shortly after joined the lab of Dr. Vasanthi Narayanaswmi. Following his tenure in OURS Connects, Abbas continued his research as part of the Undergraduate Research Opportunity Program (UROP) during his sophomore year. He was accepted to the CSU-LSAMP Summer and Academic Year Research Fellows program and embarked on a more independent project testing the hypothesis that 4-hydroxynonenal (HNE) modification alters the structure and function of apoE in an isoform-specific manner. He is mainly focusing on the lipid-binding abilities of apoE3 and apoE4 and how the HNE modification of these two proteins can drastically reduce their ability to bind lipids. Abbas has presented his research at five conferences, including the CSULB College of Natural Sciences Research Symposium, Southern California Conferences for Undergraduate Research, CSU Program for Education & Research in Biotechnology, 32nd Annual Student Research Competition at CSULB, and SACNAS. Abbas has served as President of the Red Cross Club, staff writer for the Honor Code magazine, and tutor and peer mentor to other CSULB undergraduates. After earning his B.S., Abbas sets his sights on medical school to pursue a career as a physician. He is a first-generation college student and thanks his family for their continued support and encouragement and Dr. Narayanaswami for helping him realize his potential.



Campus Coordinators:

Lora Stevens, Ph.D.
Associate Professor,
Geology
(562) 985-4817
lora.stevens@csulb.edu

Cynthia Alarcon
Student Support Coordinator, CNSM
(562) 985-4682
cynthia.alarcon@csulb.edu



CAL STATE LA

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

OUTSTANDING ALUMNA BEATRIZ AGUIRRE • BIOLOGY

Beatriz is a first-generation college student who dreamed of being the first in her family to obtain a college degree. Beatriz faced many challenges as a first-generation undergraduate student, which included juggling a full-time job to help support her family and pay for her education, a serious kidney and heart medical condition, all while taking a full scientific course load. However, Beatriz persevered and graduated with her B.S. in Biology. In her last year as an undergraduate student, Beatriz discovered her love for research in Plant Ecology. She decided to gain more research experience and improve her academic portfolio in order to obtain a Ph.D. and pursue a career in academia. Beatriz pursued her M.S. in Biology at Cal State LA as a participant in the CSU-LSAMP Bridge to Doctorate Program. In this program Beatriz thrived. She was able to demonstrate academic success by maintaining her GPA at a 3.936 in her rigorous graduate coursework. Beatriz was also highly productive in research as shown by her numerous presentations at national and international conferences and three manuscripts that are current in preparation. Her academic and research success gave her the confidence needed to accept an offer to begin a PhD program in Plant Biology at Cornell University for Fall 2020. Beatriz also received the prestigious NSF-GRFP fellowship to help fund her PhD program. Cal State LA takes great pride in recognizing Beatriz Aguirre as our Outstanding Alumnus.



Campus Coordinator(s):

Katrina Yamazaki, Ph.D.
Assistant Professor, Biological Sciences
(323) 343-2086
kyamaza@calstatela.edu

Andre Ellis, Ph.D.
Professor, Geosciences
(323) 343-2411
aellis3@calstatela.edu





CAL MARITIME



OUTSTANDING ACADEMIC, & SERVICE/ LEADERSHIP ALEXIS HOLT FACILITIES ENGINEERING TECHNOLOGY

Alexis Holt recently completed her BS degree in Facilities Engineering Technology at CSU Maritime Academy in May 2020. A four-year LSAMP participant, Alexis contributed to the CSU-LSAMP program at her campus. In 2018 and 2019, Alexis led a delegation of CSU-LSAMP students to regional conferences of the National Society of Black Engineers, where Cal Maritime students learned professional development skills and better connected with industry partners in meaningful ways. Alexis has also served as a CSU-LSAMP Peer Mentor, helping to guide students as they progress through a demanding and rigorous degree plan in Facilities Engineering Technology. In the summers of her sophomore and junior years, Alexis completed internships at Kaiser Permanente and Consolidated Asset Management Services (CAMS), respectively. At KP, Alexis participated in the preparation of a Joint Commission by researching, identifying, and organizing proper documentation, allowing her to have a deeper understanding of the various components that makes the hospital function correctly. At CAMS, Alexis assisted and learned operations at a plant that generates 240 Megawatts for PG&E and 140,000 pounds of steam delivered to the C&H sugar factory next door. Capitalizing on these opportunities and her hard work, Alexis recently began employment as a Stationary Engineer at SFO airport.

OUTSTANDING ACADEMIC, & SERVICE/LEADERSHIP SUALO TIJERINO MARINE ENGINEERING TECHNOLOGY

Saulo Tijerino graduated in May 2020 with a Bachelor of Science degree in Marine Engineering Technology from CSU-Maritime. Saulo was able to participate in numerous hands-on experiences that enrich and set apart Cal Maritime students, including sailing on the Training Ship Golden Bear as a freshman, and again as a senior. Saulo recognized that the two voyages revealed his evolution and growth as a Marine Engineering student over the course of his studies at Cal Maritime. Saulo also was able to apply his engineering training when he sailed on the Mahi Mahi for Matson Navigation Company as an intern during the summer of his sophomore year. As an LSAMP student, Saulo gave back to the CSU-LSAMP community as a peer mentor for first- and second-year Engineering Technology students and actively promoted the LSAMP program. Saulo made the most of his experiences and felt rewarded by the many opportunities to engage in hands-on learning and discovered a passion for finding solutions to challenging problems. Saulo recently began working as an operational engineer with Genentech, where he is finding good use of his education and a rewarding career.



OUTSTANDING ACADEMIC, & SERVICE/LEADERSHIP CHRISTOPHER DE ALBA • FACILITIES ENGINEERING



Christopher De Alba graduated in May 2020 with a degree in Bachelor of Science in Facilities Engineering Technology from CSU-Maritime. During his time at Cal Maritime, Christopher was an active member of the campus community, and in particular for the CSU-LSAMP program as a 4-year LSAMP student.. Chris achieved the Dean's List several times and was a member of the Tau Alpha Pi Honor Society. In addition to his academic accolades, Chris gave back to the campus community by serving as a welding assistant. During his summers, Chris participated in rewarding internships at Oracle as a Stationary Engineer and at Los Angeles Department of Water and Power as a Repair and Construction Engineer. Both of these opportunities taught Chris real-world applications and hands-on training that reinforced the nature of his degree plan at Cal Maritime. Growing up in Rancho Palos Verdes near the Port of Long Beach, Chris has always aspired to work there, following in his dad's and grandfather's footsteps. Having this goal in mind lead Chris to attend Cal Maritime, where he was an exemplary student and made the most of his time and the hands-on programs offered there. After four years and many enriching experiences, including his LSAMP mentorship of younger students, he reached his goal; Chris was hired in Summer 2020 at the Port of Long Beach and now serves as a crane mechanic.

Campus Coordinator:
Frank Yip, Ph.D.
Assistant Professor of Chemistry
(707) 654-1723
fyip@csum.edu



California State University MONTEREY BAY

Extraordinary Opportunity

OUTSTANDING RESEARCH IN STEM JADA CARTER • MOLECULAR BIOLOGY

As a Ronald E. McNair Postbaccalaureate Achievement Program Scholar and Kayne Scholar, first generation college student and as a queer black womxn scientist, Jada Carter is a senior majoring in molecular biology with a minor in chemistry. With the goal of attaining a Ph.D. in Agricultural/Horticultural Sciences, Jada's research sits at the intersection of biochemistry, plant chemistry, and evolutionary biology. Their first research experience was at the CSUMB Goeltz Laboratory of Electrochemistry working with Dr. John C. Goeltz on the use of a potentiostat and UV-vis spectrometer to create an energy dense battery using TEMPOL and various molten salts. Jada then completed a CSUMB service learning requirement with the Bureau of Land Management in Marina, California which introduced them to plant ecology and native plant identification, collection and dispersal of native seeds, and eradicating invasive species in the Fort Ord National Monument. These two research experiences launched Jada into their penultimate research experience working at the Purugganan plant lab at NYU, searching for a gene responsible for salt tolerance mechanisms in African rice in order to elucidate regions of the genome that may be involved in the salt stress response. At NYU, Jada learned how to grow rice hydroponically, learned about the rice genome and physiology, and was introduced to bioinformatics. Jada will be one to watch as they continue on their research trajectory integrating plant sciences and biotechnology to answer the hard and wicked questions about how climate change impacts food sustainability and production in low-income communities.

OUTSTANDING SERVICE & LEADERSHIP CASSANDRA TICE • BIOLOGY

Cassandra Tice is a senior at California State University, Monterey Bay majoring in Biology with an emphasis in Ecology, Evolution, and Organismal Biology and a minor in Environmental Science. Before joining the Undergraduate Research Opportunities Center (UROC), Cassandra interned at The Bureau of Land Management where she collected plant field samples as a method of monitoring the effects of goat grazing on the grasslands in the Monterey area. In Spring 2020, Cassandra joined LSAMP and was selected as an UROC Researcher under the mentorship of Dr. JP Dundore-Arias. Her research focuses on understanding how Pythium wilt disease pathogen infects lettuce and how the pathogen survives in the environment and how it reacts to commercial fungicides. Her passion for agriculture led her to be selected for the United States Department of Agriculture (USDA) Future Leaders in Agriculture Program. As one in thirty participants in this program, she was able to travel to Washington D.C. to discuss careers in agriculture, attend the USDA Agricultural Outlook Forum, and meet with the U.S. Secretary of Agriculture. After graduating from CSUMB, Cassandra would like to pursue graduate school in Environmental or Biological Sciences. Her ultimate career goal is to work for a Federal agency and conduct research focusing on enhancing agricultural and environmental sustainability.



OUTSTANDING SERVICE & LEADERSHIP JORDAN VELASCO • MARINE SCIENCE



Jordan Velasco is a senior majoring in marine science and minoring mathematics/statistics minor at CSUMB. Jordan's research interests include marine mammal and fish behavioral ecology, Orca whale and cetacean communication and behavior marine conservation. During spring 2018, Jordan joined the Undergraduate Research Opportunities Center (UROC) Scholars program, became a CSU-LSAMP participant, and began conducting research with Dr. James Lindholm monitoring local fish communities in the Monterey Peninsula, doing roving diver transects with cameras to confirm. At the UROC 2020 Summer Research Symposium, Jordan presented his research project "The Novel Application of Virtual Reality: Quantifying Patterns in the Distribution of Temperate Kelp Forest Fishes through VR and Traditional Underwater Visual Census" to CSUMB faculty and students. Most recently, he was awarded the Anthropocene award which entails him being an ambassador for underrepresented ethnic groups in research diving and marine science. Jordan has always been passionate about the natural world around him and wants to inspire others to feel the love for nature as he does. He finds the ocean to be a mysterious network that has the ability to facilitate new discoveries and dreams about being a part of positive impacts that contributes to finding solutions that marine ecosystems face.

OUTSTANDING RESEARCH IN STEM MARIAH DANIEL • MARINE SCIENCE



Mariah Daniel is a senior at California State University, Monterey Bay (CSUMB) majoring in marine science with a minor in statistics. Mariah always had a passion for marine life, but it wasn't until her first semester at CSUMB that she knew she wanted to pursue research. Her research interests focus on shark conservation and fisheries management. In 2017, Mariah joined the CSU-LSAMP program and started her first research experience in an Ichthyology lab that researched trophic ecology of a deep-water community of elasmobranchs. In the summer of 2018, Mariah was selected to participate in the CSU-LSAMP Costa Rica Research Training Expedition program where she conducted research across a variety of habitats and landscapes of Costa Rica. This research experience led to a publication in the CSU-LSAMP Costa Rica Summer Expedition Report. In fall 2018, Mariah joined the Undergraduate Research Opportunities Center (UROC) at CSUMB where she was selected to participate in the UROC Researchers program to engage in undergraduate research for 3 semesters, and she later joined the Ronald E. McNair Postbaccalaureate Achievement Program (McNair Scholars). Mariah is continuously developing as an undergraduate researcher, learning diverse skill sets that will prepare her for graduate studies. Once she graduates from CSUMB, she would like to pursue a Master of Science in marine science and ecology with the goal of creating lasting impacts through research, management, and conservation.

Campus Coordinators:

John Banks, Ph.D.
Director, UROC
(831) 582-3576
jebanks@csumb.edu

Jessica Bautista, Ph.D.
Research Associate, UROC
jbautista@csumb.edu

CAL POLY POMONA

OUTSTANDING RESEARCH IN STEM

VANESSA GONZÁLEZ • AEROSPACE ENGINEERING

Vanessa Gonzalez graduated Magna Cum Laude as an Aerospace Engineering major and Mathematics minor with a 3.73 GPA from Cal Poly Pomona. She placed on the Dean's List 7 times and the President's List. Vanessa was part of the Kellogg Honors College, Tau Beta Pi Engineering Honors Society, and the Vice President of Sigma Gamma Tau Aerospace Honors Society.

Vanessa conducted research in which she used a numerical analysis approach to study the behavior of a pre-twisted flying wing that was designed with a bell-shaped span load and compared that to different wing configurations. She examined the stability of the different wings and studied their aeroelastic behavior. Vanessa also participated in unmanned aerial system research experience for undergraduates program at Cal Poly Pomona in summer 2018. There, she led a team to identify and verify the flight dynamics model of a coaxial tricopter using frequency domain system identification techniques.

Vanessa was also awarded the Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-Service Program funded by the Department of Defense (DoD) in 2018 for her bachelors and then again in 2020 for her masters. This scholarship allows her to attend school fully funded and offers her a summer internship with the United States Air Force every summer until she graduates. Upon graduation Vanessa will have a guaranteed job with the DoD as part of their civilian workforce working at Edwards Air Force Base as a flight test engineer. Vanessa is now attending University of Southern California to pursue her Master of Science in aerospace engineering.

OUTSTANDING RESEARCH IN STEM

JOCELYN MERAZ • BIOLOGY

Jocelyn Meraz is a third-year nutrition science major who has made the Dean's List twice and the President's List. She is a first-generation college student who has been involved in the Maximizing Engineering Potential (MEP) program through networking activities and industry events. With the guidance of an MEP mentor, she began to seek research opportunities and joined the CSU-LSAMP program. She conducted big data research for Dr. Tamer Omar in the Electrical & Computer Engineering Department. Her research investigated how a big data system can aid in collecting large amounts of unstructured data, and the process behind organizing and analyzing that data to see if the data is valuable to its clients. She worked with Amazon Web Services (AWS) to create a master cluster that consisted of nodes that would store data and was accessible from a remote computer using PuTTY to determine if a node or multiple nodes failed. Jocelyn participated in the Engineering Without Borders club, project meetings for creating a local community garden, and volunteered to feed the homeless. In addition, she tutored elementary and junior high students in mathematics and science. Jocelyn will apply to graduate school to become a physical therapist. She plans on opening her own clinic that also treats veterans and educates her community on the importance of exercising regularly and eating healthy. Jocelyn wants to understand how her future clients who use prosthetics would like to improve their device(s) and apply what she learned from her engineering courses to innovate prosthetics that are more effective.



OUTSTANDING RESEARCH IN STEM

HO LUN CHAN • CHEMICAL ENGINEERING

Ho Lun Chan (Lun) received his B.S. in chemical engineering (Summa Cum Laude) with a materials engineering minor at California State Polytechnic University, Pomona. Lun is currently pursuing a Ph.D. in materials science and engineering at the University of Virginia, studying the corrosion and performance of irradiated nuclear reactor alloys under extreme environments.

Lun's journey began when he started his research in materials science and corrosion at Cal Poly Pomona with Dr. Vilupanur Ravi on the corrosion behavior of newly developed aerospace materials. He delivered 27 conference presentations, published 5 peer-reviewed publications, and received 8 poster awards and 23 scholarships from professional societies. Lun was an LSAMP Research Scholar, participated in the McNair Scholars Program and Kellogg Honors College, and was also a Presidential Counsel Scholar, Presidential Discovery Fellow, Achieve Scholar, and Engineering Scholar. He was also selected to participate in summer REU programs at the University of Washington and Case Western Reserve University.

Born in Hong Kong and having immigrated to the U.S., Lun is a first-generation college student who aspired to bring the spirit of entrepreneurship with him. He co-founded two start-ups and was a part of the NSF I-Corps team representing Cal Poly Pomona in the statewide entrepreneurial competition. Lun was recently nominated as a student board member for ASM International. His objective is to promote interest, involvement and training opportunities for minority students interested in materials science and engineering. His long-term goal is to be a successful entrepreneur who pioneers electrochemical technologies for real-time corrosion management, extraterrestrial mining, and neurological research.



OUTSTANDING ACADEMIC

JULIA ABREGO • BIOLOGICAL SCIENCES

Julia Abrego completed her B.S. in Biological Sciences at Cal Poly Pomona after transferring from Rio Hondo Community College. She graduated Summa Cum Laude with a 3.96 GPA, after being on the Dean's honor list every semester and on the President's Honor list every year. Determined to pursue research, she joined an REU program at San Francisco State University in summer 2019. There, she participated in two research projects, both of which involved learning how to code. On one project, Julia used code to investigate the diversity of drug resistance in Pseudomonas aeruginosa bacteria. For her second project, she collaborated with a team of students to determine which social media platform was the most effective in reaching students facing housing disparity. Julia continued to pursue research at Cal Poly Pomona and became an NSF SPIRES research fellow. She worked in the laboratory of Dr. Jaimie Snyder and helped pioneer a research technique to investigate the novel replication cycle of an archaeal virus. To develop her mentorship skills, Julia became a mentor for the Achieve Scholars Program, guiding students through their college journey with a focus on becoming involved in research. After graduation she was a team leader for the Summer Coding Immersion Program run by San Francisco. Julia now works as a clinical lab assistant at Curative Inc, a startup that uses polymerase chain reaction to detect the presence of COVID-19 in patient samples. Inspired by the research professors she has had along her college journey, she plans on pursuing graduate school and becoming a professor.



Campus Coordinator:

Steve Alas, Ph.D.
Professor, Biological Science
(909) 869-4546
alas@copp.edu

OUTSTANDING GRADUATE LILIAN MURPHY • BIOLOGICAL SCIENCES

Lillian Murphy joined Sacramento State in fall 2014 as a biology pre-major. From the start, Lilly showed academic excellence and commitment to her education. She joined the Peer Assisted Learning (PAL) program as a student participant, later becoming a PAL Facilitator, and finally earned a supervisory role in the program. As the longest serving PAL Facilitator, Lilly has served hundreds of her fellow students and developed a passion for education. In addition to her service, she worked with Dr. Kimberly Mulligan analyzing the relationship between environmental neurotoxins and common autism risk genes in *Drosophila melanogaster*. She presented her research at multiple venues, including the 2018 SACNAS National Diversity in STEM Conference, where she obtained a research collaboration with a faculty member at UC Merced, where she earned a second authorship on the collaborative publication (10.1074/jbc.RA119.011138). She also presented her work at the 31st Annual CSU Biotechnology Symposium CA, where she won the CSU 2019 Glenn Nagel Undergraduate Research Award. Lilly is also the recipient of the CSU Sacramento President's Award, which is awarded to one student each year, the College of Natural Science and Mathematics Outstanding Graduate Award, the Department of Biological Sciences Outstanding Graduate and the Science Educational Equity Program Outstanding Graduate. Lilly was also awarded the 2020 NSF Graduate Research Fellowship and is currently enrolled in the Molecular and Cellular Biology (MCB) graduate program at UC Berkeley, pursuing her doctoral degree. She wishes to become a faculty researcher and mentor the next generation of scientists.



OUTSTANDING SERVICE & LEADERSHIP ANTHONY PEREZ • CHEMISTRY



Anthony Perez transferred to Sacramento State in fall 2018 as a Horner Science Scholar, where he joined the Chemistry department and worked as a peer mentor for the Commit to Study Program. As a peer mentor, Anthony helped at risk students developing their study skills, confidence and growth mindset. As part of his science education, he joined Dr. Kathy McReynolds' research group, where he worked as a RISE Research Scholar focusing on the Synthesis of Non-Native Oligomeric Sugars for Biomedical Applications. He has presented his research at multiple venues, including the 2019 SACNAS National Diversity in STEM Conference and the 2020 Sacramento State Student Research and Creative Activities Spring Symposium, where he placed as one of the competition winners. Anthony also served as the SACNAS at Sac State Student Chapter Vice President, where he helped promote the need for diversity and inclusion in STEM. He is currently working on his Masters in Chemistry at Sacramento State and wishes to become a professor, who aims to put as much energy into education as in research.

Campus Coordinator(s):
Enid Gonzalez-Orta, Ph.D.
Professor, Biological Sciences
(916) 278-6519
gonzalezorta@csus.edu

Mary McCarthy-Hintz, Ph.D.
Professor, Chemistry
(916) 278-6438
mccarthy@csus.edu



SAN DIEGO STATE UNIVERSITY



OUTSTANDING ACADEMICS

CHRISTOPHER OYUELA • MECHANICAL ENGINEERING

Christopher Oyuela is a graduating senior studying mechanical engineering. A child of immigrant parents, he entered university just as his mother was diagnosed with Stage-3 breast cancer. His initial plan was to earn his degree, get a job, and help his family. As a first-generation college student, he sought to make the most of his college experience and actively participated in programs that guided and empowered him (CSU-LSAMP, MESA, SACNAS, MEChA, SHPE, and Tau Beta Pi). As an incoming freshman, he participated in CSU-LSAMP's Summer program. Before CSU-LSAMP, he believed being a professor was something only privileged individuals could afford and definitely something out of his reach. Now, he is preparing to be one. His active involvement on campus has provided clarity in his career trajectory and funding to pursue such endeavors while still financially supporting his family. In 2019, he was accepted into the NIH- MARC program, where he has worked to create a career as a researcher. He has presented and won multiple awards at national conferences and has facilitated and created outreach STEM workshops to help develop the STEM talent in communities like his own, all while maintain a 3.67 cumulative GPA. His goal now is to earn a Ph.D. in chemical engineering and to pursue a career as a professor working to create new nanomaterials that address the historical environmental damage done to disadvantaged communities and to teach and mentor the next generation of young disadvantaged scientists and engineers

OUTSTANDING ACADEMICS

CHRESTINA MANSOOR • CIVIL ENGINEERING & POLITICAL SCIENCE

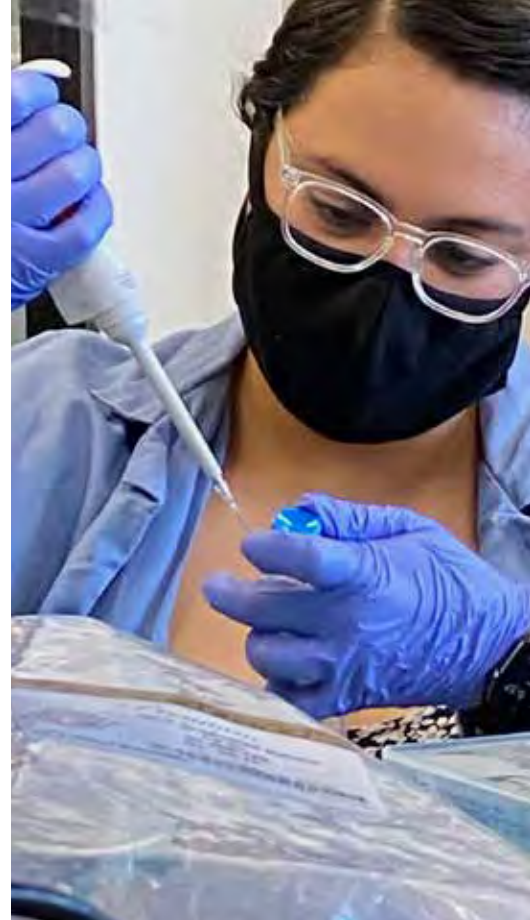
Chrestina Mansoor graduated Magna Cum Laude with a Bachelor of Science in Applied Arts and Sciences in Civil Engineering and Political Science and with Distinction in both Civil Engineering and Political Science in Spring 2020. Chrestina began her academic journey at SDSU with the STEM Start summer program where she performed various STEM experiments and built a strong foundation in the sciences that was critical for her engineering career. In fact, Chrestina and her teammates won the analysis competition on the levee failures and water contamination in New Orleans during Hurricane Katrina, which was a great way to start her freshman year as an undergrad equipped with the essential skills to succeed. During her time at SDSU, Chrestina joined the MESA Program and CSU-LSAMP which supported her growth, promoted her research experience, as well as recognized her academic excellence by placing her on the Director's List, selecting her to participate in the 18th Annual Leadership Conference, as well as rewarded her with a scholarship sponsored by local industry. Chrestina was also active in the civil engineering honor society, Chi Epsilon (XE), which further enriched her experience in the principles of scholarship, character, practicality, and sociability. Chrestina's outstanding academic performance also enabled her to be recognized by the American Association for Women in Science (AWIS), the American Council of Engineering Companies (ACEC), and the Society of American Military Engineers (SAME) on a larger scale.



OUTSTANDING SERVICE & LEADERSHIP

MARIA FERNANDA MORA • BIOLOGY

Maria Fernanda Mora transferred to SDSU in fall 2017 from Southwestern College, where she was already active in student organizations and STEM programs. At SDSU, Maria was an active member of SACNAS, even when the organization was close to dissolving. Maria, along a few other dedicated members, volunteered countless hours to recruit and increase participation until participant numbers more than quadrupled. During this time, Maria was the national liaison and outreach chair. As a member and officer in SACNAS, Maria participated in several outreach events aimed to increase the involvement of minorities in STEM. Events targeted middle and high school students who were curious about degrees in STEM. One of Maria's favorite events was the Barrio Logan Science and Art Expo, where she demonstrated the science behind bouncy balls and slime to children, which they found entertaining and educational. Maria graduated in December 2019 but continued active participation in SACNAS. Maria also participated in research and learned many valuable skills, one of them being able to communicate science to the community. An example of this is Marine Science Day, which allows children to learn hands-on about marine science and conservation ecology. As a peer mentor for the SDSU Health Professions Advising Office (HPAO), Maria was able to help not only people who came into the office asking general questions, but also mentor undergraduates who were also on the pre-med track. As a community college student, Maria rarely had any guidance in her academic endeavors, which is why she feels it is extremely important to be proactive and help others who might be in the same position, especially first-generation college students.



CAMPUS COORDINATORS

Estralita Martin, Ph.D.
Assistant Dean for Student Affairs
College of Sciences
Director of CASA
(619) 594-4009
esmartin@sdsu.edu

Thelma Chavez
Coordinator, LSAMP-MARC-MESA
College of the Sciences
(619) 594-7195
thelma.chavez@sdsu.edu

OUTSTANDING RESEARCH IN STEM

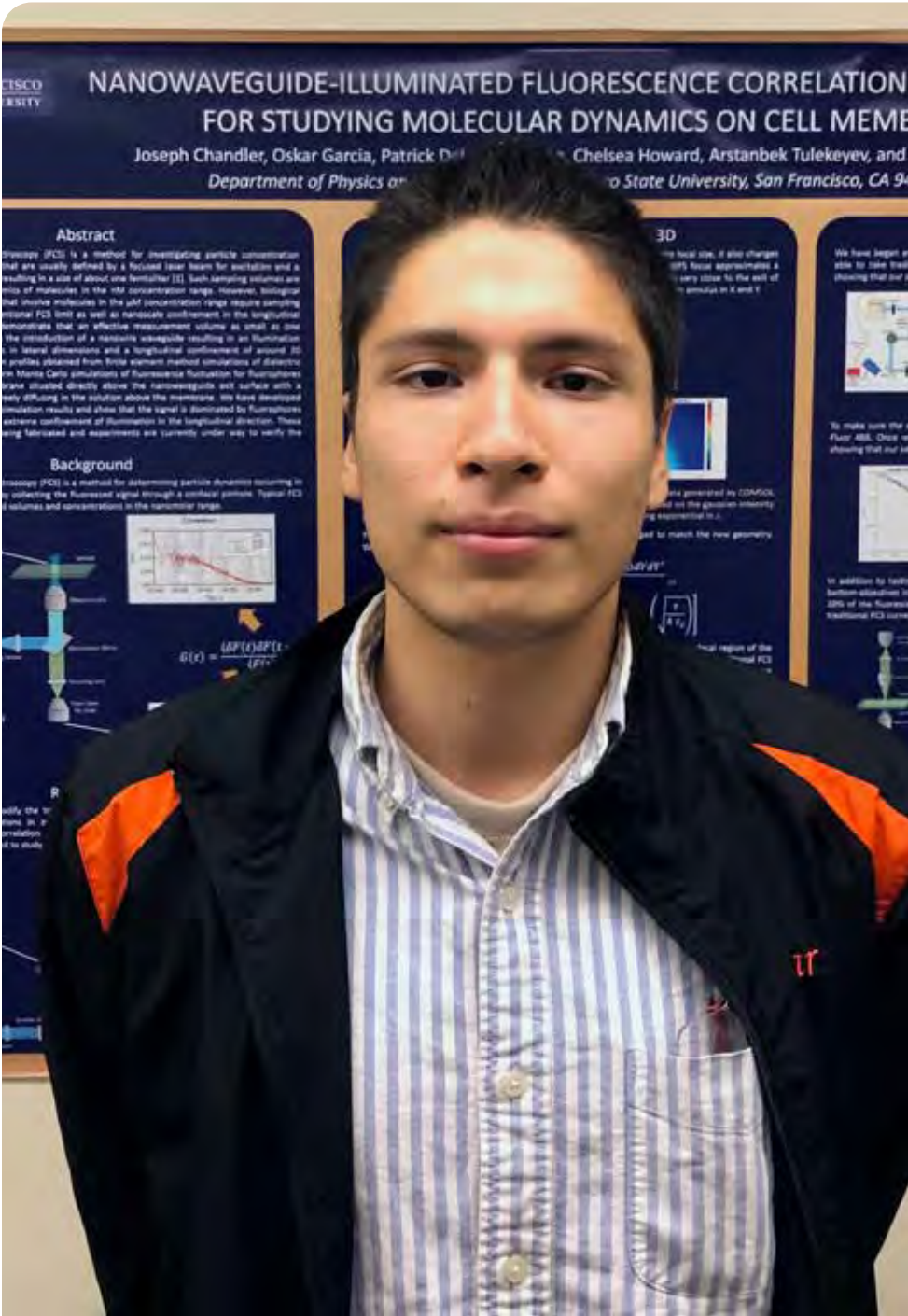
RENÉ ARVIZU • MECHANICAL ENGINEERING

René Arvizu graduated with a BS in Mechanical Engineering with an emphasis in Bioengineering in May 2020. As a native of Calexico, he grew up knowing the health concerns of the Imperial Valley and saw the need to help build a better future for his community by becoming a Biomedical Engineer. René has been involved with CSU-LSAMP even before freshman year when he attended the Summer Calculus Bootcamp. As a member of the MESA program since the 7th grade, René has been on the path towards a life in STEM and has benefited as a part of MESA at SDSU. As a SACNAS member, René volunteered in different events to promote STEM to younger students. René became a part and eventually president of the Biomedical Engineering Society (BMES) which helped him cultivate a community of biomedical engineering at SDSU when there wasn't any. This opened the doors for him to conduct research and he began working on a novel muscle sensor device in the Biomechanics lab with Dr. Shawn O'Connor. During his last summer, René was part of an REU at SDSU with Dr. Samuel Kassegne, which ignited his interest in microfabrication and he continued to work in his lab until he graduated. With travel award assistance from CSU-LSAMP, René presented his research at the Society for Hispanic Professional Engineers (SHPE) convention in Phoenix and at the BMES national convention in Philadelphia. René was awarded an Undergraduate Research Excellence Award for his summer REU and a Women in Science award for his collaboration with his partner in the NanoFab.SDSU, Rita Hanna. René plans to work full-time for a microfabrication company to gain experience and eventually obtain a Ph.D. in neural implants.

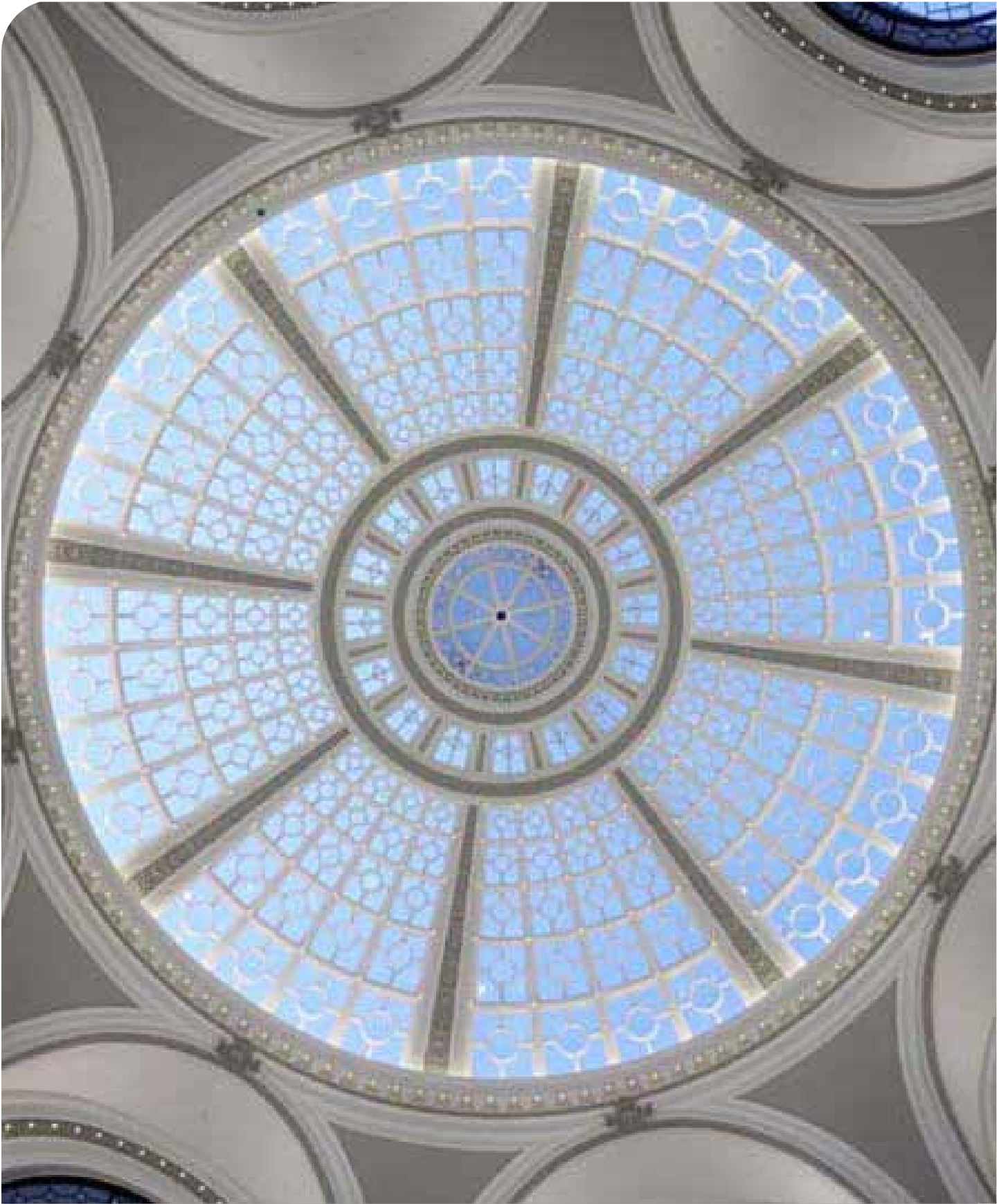




OUTSTANDING GOALS + PERSISTENCE = SUCCESS
OSKAR GARCIA • PHYSICS



Oskar Kenyatta Garcia is a junior and a physics major at San Francisco State University. He immigrated to the United States from Colombia when he was six years old. Growing up, his father always encouraged him to explore and pursue his interests but also to be committed. Like many young students, Oskar was not always motivated by sophisticated ideals. In high school, Oskar took chemistry because he wanted to wear a lab coat. He failed that class. Still needing a lab class, he enrolled in physics and did so well that his teacher asked him if he wanted to try AP physics. Oskar thought that was a terrible idea. Still, he enrolled and surprisingly found an engaged learning community which influenced him to stay with it, and the physics seed was planted. When he came to SF State, he declared computer science as a major because he thought he wanted to make video games. However, Oskar was more interested in how computers worked than in programming, so he changed his major to physics. Because of his exploratory spirit, Oskar has conducted research in physics, biology, biophysics and computational chemistry and realized that his interests overlap in all these areas. Consequently, Oskar has decided to pursue a career as an MD/PhD. Through the experience of his formative years, he has learned to set goals and not be afraid to pursue them, despite any obstacles.



Campus Coordinator: Teaster Baird, Ph.D.
Professor, Biochemistry
(415) 405-0935
tbaird@sfsu.edu

SJSU SAN JOSÉ STATE UNIVERSITY

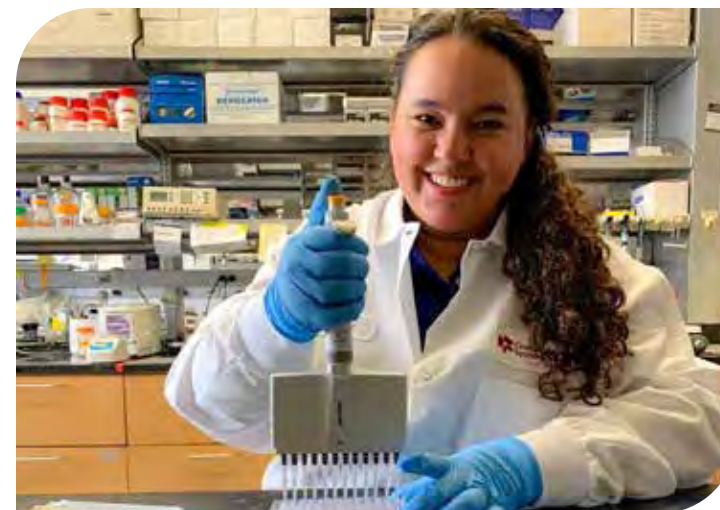


OUTSTANDING RESEARCH IN STEM ARTURO CHAVEZ BIOMEDICAL ENGINEERING

Arturo Chavez is a senior pursuing a degree in biomedical engineering with a minor in chemistry at San Jose State University. Arturo started his college education at Gavilan College, a community college in Gilroy, CA, where he also worked as an academic tutor. He hopes to pursue a PhD in biomedical engineering to explore the emerging field of nanomedicine and improve the overall safety and accessibility of pharmaceuticals. Arturo has been working since June 2017 in Dr. Laura Miller Conrad's chemical biology group. His research project is to develop new antibacterial treatment strategies by blocking virulence without affecting cell viability. Inhibition of virulence renders the pathogen more benign, allowing the immune system to clear the infection. Arturo's project targets quorum sensing, the signaling system that controls virulence in many bacteria by mimicking interactions favorable for inhibition of the LuxI-type synthase through the synthesis of analogs of its natural ligand, acyl-ACP. He presented his research at the 2019 ABRCMS, where he received an award for his poster. Arturo has been involved with the Society of Latino Engineers and Scientists at SJSU since 2018, with the focus of empowering other Latinx students in STEM to succeed academically and professionally through the formation of community and professional development. He currently serves as the organization's VP of Outreach, and previously served as organizer of the largest student-led outreach event, Science Extravaganza. This annual initiative brings underprivileged, middle-school students to SJSU for a day full of activities, with hopes of inspiring them to pursue higher education.

OUTSTANDING ACADEMIC & RESEARCH IN STEM KIPCHOGE RANDALL, JR. BIOLOGICAL SCIENCES

Kipchoge Randall Jr. is a junior pursuing a biological sciences degree with a concentration in molecular biology at San Jose State University. Kip excels in his college course work (3.7 GPA) and greatly enjoys his biology and chemistry classes, being very proactive about asking questions and managing his time well. He is also research active with Dr. Elizabeth Skovran's microbiology research lab. The overall goal of the lab is to understand the metabolism and physiology of methylotrophic bacteria to advance their engineering efforts in the biomining and bio recycling of rare earth elements (REE) and the production of biodegradable plastics. Kip's project focuses on identifying genes regulating the transport system that allows for REE's to be acquired by the cell. Kip has been able to present his work at CSUPERB and ABRCMS. During the summer of 2020, Kip participated in the Gateways to the Laboratory Summer Research Program hosted by the Weill Cornell, Rockefeller, Sloan Kettering Tri-Institutional MD/PhD program. Kip hopes to continue to an MD/PhD in infectious disease and looks forward to a career as a physician scientist. In addition, he aims to be an advocate for change in issues of healthcare inequities directed towards the LGBTQ+ and African American communities.



OUTSTANDING RESEARCH IN STEM CARLY TOMPKINS BIOLOGICAL SCIENCES

Carly Tompkins is a senior majoring in biological sciences with a concentration in molecular biology at San Jose State University. Carly's interest in scientific research was sparked by a seminar given by Stanford Professor Daria Mochly-Rosen who uses small molecules and peptides to correct enzymopathies and pathologies. Taking initiative, she spent the summer of 2019 working in the Mochly-Rosen lab at Stanford working alongside physician-scientist Bereketab Haileselassie and postdoctoral fellow Riddhita Mukherjee to understand the role of dysfunctional mitochondria in sepsis-induced immunoparalysis. Carly's direct role in the project was developing an LPS-independent model for priming macrophages in their immunoparalysis model. Their work was accepted for presentation at the Pediatric Academic Societies conference and has been submitted for publication. After the summer, Carly continued her research at Stanford in the lab of Dr. Haileselassie where she is currently characterizing the role of Drp1 and p53 in sepsis-induced pathologic fission of mitochondria and mitophagy. Carly also actively participates in SPARK meetings - a global program founded by Daria Mochly-Rosen that unites academia and industry experts to bridge the gap between discovery and drug treatment. Her participation in SPARK and passion to help people through science has inspired her to pursue a career in translational research. Outside of the lab, Carly is passionate about outreach; in collaboration with the Silicon Valley Hispanic Foundation, she facilitates a "Girls Who Code" club for Hispanic middle school girls to inspire confidence and encourage girls to pursue careers in STEM fields.

Campus Coordinator:
Karen Singmaster, Ph.D.
Professor of Chemistry
(408) 924-4980
karen.singmaster@sjsu.edu

OUTSTANDING RESEARCH IN STEM ALEXANDRA SALAZAR MOLECULAR BIOLOGY

Alexandra Salazar is a senior majoring in molecular biology at San Jose State University. She is currently applying to several PhD programs in molecular biology and neuroscience and hopes to pursue a career in academia. Alexandra has been an active member in Dr. Wilkinson's neurophysiology research lab for three years. Their research focuses on understanding the molecular mechanisms of how muscle sensory neurons sense stretch and how the sensitivity of muscle spindle afferents is controlled. Her project uses a transgenic line of mice that have a single copy knockout of the vesicular glutamate transporter 1 gene (VGLUT1 +/-) which packages glutamate within synaptic like vesicles found in the muscle spindle afferents. Alexandra is lead dissector and also conducts electrophysiology experiments to better understand how glutamate released from the muscle spindle afferents modulates their sensitivity during muscle stretch. She created her own project after identifying possible anatomical differences in the spine curvature of these VGLUT1 +/- mice. Her research aims to understand if the reduction in VGLUT1 protein could lead to differences in proprioception and anatomy. She has presented her research at multiple conferences including an oral presentation at the 2019 ABRCMS. In July 2020, Alexandra was named a Molecular Biology Scholar by Princeton University, an award appointed to students with exceptional ability and promise who will bring a diversity of viewpoints and cultures to the sciences, and who have demonstrated interest and passion for the field. Alexandra is the laboratory manager for her group and mentors incoming students. She has been a keynote speaker at a high school where she shares her educational journey and encourages underrepresented minority students to pursue degrees in STEM.



CAL POLY

SAN LUIS OBISPO

OUTSTANDING RESEARCH IN STEM & EXCELLENCE IN CONTRIBUTIONS TO EQUITY & INCLUSION

REBECA ALMEIDA • PUBLIC HEALTH & COMPARATIVE ETHNIC STUDIES

Rebeca Almeida graduated Summa Cum Laude in 2020 with a B.S. in Public Health and a B.A. in Comparative Ethnic Studies and a minor in Women's & Gender Studies. During her time at Cal Poly, Rebeca developed a passion for research, which led her to work as a research assistant for Drs. Alber, Tseng and Ventura in the Kinesiology & Public Health Department, and as a research analyst at UC San Francisco. Rebeca's most memorable achievements include contributing to the publication of seven peer-reviewed articles and presenting research at several professional conferences across the country. Rebeca also served as a certified peer health educator on campus, president of the Public Health Club, and student representative in the Advisory Council. Rebeca was the recipient of several research awards and scholarships, like the Frost scholarship, BEACoN scholarship, Baker and Koob Endowment grant, CSU-LSAMP Research Scholar award, and CSUPERB award. In Spring 2020, Rebeca was also extremely honored to receive the Academic Excellence Award from the College of Liberal Arts, the Community Service Award from the College of Science and Mathematics, and the Academic Excellence Award from the Kinesiology and Public Health Department. Finally, she takes tremendous pride in being the first student at Cal Poly to ever graduate at Cal Poly with a B.S. in Public Health. In January of 2021, Rebeca will begin working as a consultant at Ernst & Young with an emphasis on health technology and healthcare. She hopes to pursue a joint Masters degree in Business Administration (MBA) and Public Health (MPH).



Campus Coordinator:

Jane Lehr, Ph.D.
Associate Professor, Ethnic Studies
(805) 756-2859
jlehr@calpoly.edu

OUTSTANDING RESEARCH IN STEM & EXCELLENCE IN CONTRIBUTIONS TO EQUITY & INCLUSION

PRISCILLA HOLGUIN WEST • PHYSICS



Pricilla Holguin West is a first-generation transfer student who graduated with her B.S. in Physics. She received an A.A. and A.S. from Citrus Community College, where she encountered her first Astronomy class and fell in love with the subject. The summer before beginning at Cal Poly, Priscilla started working on two separate research projects, both related to studying properties of different types of galaxies. Her work continued throughout her first school year and set her up to receive acceptance into the 2019 Banneker & Aztlán program, a prestigious summer research program at the Center for Astrophysics, Harvard & Smithsonian. In this program, she worked with a Harvard Professor of Astronomy, explored the intersectionality of the student participants' minority identities and how that informs their experiences in academia. Priscilla's work was presented at the 233rd American Astronomical Society Conference, where she won a Chambliss Astronomy Achievement Student Award. In fall 2019, Priscilla co-founded the Minorities in Physics (MiP) club to start effecting change regarding equity and inclusion in not just the Physics Department, but in the greater Cal Poly Community as well. She served as President during the 2019-2020 school year, and this led to MiP receiving funding through successful grant proposals for a two-day event featuring a guest speaker and workshop for students focused on addressing the ways in which the STEM field fails to retain and support minority students. Priscilla started her PhD in astronomy at New Mexico State University in fall 2020 and received the William Webber Voyager Fellowship.

OUTSTANDING RESEARCH IN STEM & EXCELLENCE IN CONTRIBUTIONS TO EQUITY & INCLUSION

GABRIEL MEDINA-KIM • COMPUTER SCIENCE



Gabriel Medina-Kim graduated with a B.S. in Computer Science, a minor in Women's & Gender Studies, and a minor in Gender, Race, Culture, Science & Technology. What started as a personal struggle to make sense of his engagement in computing and its legacies of oppression became his formation as a scholar-activist through outreach, research, and teaching. In outreach, Gabriel worked with youth in Santa Maria through the Cal Poly Society of Hispanic Professional Engineers. He was recognized through awards from the Cal Poly College of Engineering, Solar Turbines, Center for Leadership, and the Department of Women's, Gender & Queer Studies. In research, Gabriel explored sociotechnical dimensions of computing with students and faculty of computer science, social sciences, and Science, Technology & Society (STS) by constructing a university-wide co-authorship network and studying how sociotechnical divisions within computer science sub-fields reproduce intersectional cultures of exclusion. In teaching, Gabriel served as an instructional student assistant for a computer science course and an ethnic studies course. Gabriel completed a research-based senior project that culminated in a course plan centering space for undergraduate computing students to explore how systems of power shape the field so they can practice making social justice-centered transformations as critical participants in their field. Gabriel continues his scholar-activism as a doctoral student of Science and Technology Studies at Rensselaer Polytechnic Institute. As a CSU Chancellor's Doctoral Incentive Program Fellow, he is excited to continue working with CSU and LSAMP community members as he researches anti-oppressive transformations in computing using anti-racist feminist and decolonial studies.



California State University SAN MARCOS

OUTSTANDING ACADEMIC DARIA BONDS • PHYSICS



Daria Bonds transferred to CSU San Marcos in 2019, after a year at Mira Costa College. Daria is a recipient of the Lockheed Martin STEM and Great Minds in STEM scholarships. After one year at CSUSM, Daria was selected as a U-RISE Scholar and CSU-LSAMP Scholar. Daria participated in the CAMPARE/STARS (Summer Training Academy for Research Success) summer research program at University California, San Diego. She worked in Dr. Monica Allen's quantum devices and imaging lab, employing recently developed microwave impedance microscopy and electronic device measurements in a study of fundamental properties of 2D heterostructures. She contributed to finding how different interactions amongst structures, the wave behavior of electrons, and the topology of materials affect a system's properties. Daria presented her work at the UCSD Summer Research Conference and at the CAMPARE Research Symposium hosted by Cal-Bridge. In fall 2020, Daria began to work in the astrophysics laboratory of Dr. Gerardo Dominguez at CSUSM investigating the rate of energy deposition and how this rate affects the temperature of solid targets to better understand the role that cosmic-rays play in surface chemistry on interstellar dust grains. In addition, Daria contributes to the CSUSM campus community through participation in the Tukwut Leadership Circle, as a cross country and track team Student Athlete Advisory Committee representative, a member of SACNAS, and a member of SPS (the Society of Physics Students). Her long-term goal is to earn a Ph.D. in astrophysics and advocate for science education.

OUTSTANDING RESEARCH IN STEM MIGUEL ANGEL ROSAS • BIOLOGY

As an incoming freshman, Miguel had the opportunity to do a summer internship with Dr. Joanne Chory at the Salk Institute in San Diego. After his initial exposure to research, Miguel decided to stay in his hometown to attend CSU San Marcos and pursue biology. Miguel joined Dr. Matthew Escobar's lab focusing on the biological function of a group of plant specific genes known as glutaredoxins. These genes are induced by nitrate and inhibit the primary root growth of the model organism *Arabidopsis thaliana*. After receiving his bachelor's in biology, Miguel continued to characterize these nitrate-induced glutaredoxins as a postbaccalaureate with Dr. Escobar. His research showed that AtGRXS8 and AtGRXS5 are expressed in root and shoot vasculature. Overexpression of AtGRXS8 resulted in plants lacking lateral roots and a strong reduction in the expression of nitrate transporting genes. Not surprisingly, nitrate uptake and the transport of nitrate from roots to shoots appear to be compromised in AtGRXS8-overexpressing plants. Miguel's research led to two coauthored publications. In 2017, Miguel moved to pursue a PhD in plant biology at Washington State University. He was awarded an NIH-Protein Biotechnology training grant and an Achievement Rewards for College Students (ARCS) scholarship during his first year. Miguel now studies a plant protein named BUZZ in the grass species *Brachypodium distachyon*. This protein is a putative cell division kinase that regulates root hair growth. He aims to investigate the signaling mechanism that regulates the growth and extension of root hairs and the regulatory role of BUZZ in this process.



OUTSTANDING ACADEMIC JAIDA OSMAN • BIOCHEMISTRY



Jaida Osman began her studies at Palomar College and is now a biochemistry major at CSU San Marcos. During her time in community college, Jaida realized that she has a passion for organic chemistry. Because she had a knack for the subject, she worked for a year as a chemistry tutor with Palomar's TLC Center. Additionally, Jaida's experience as a Type 1 Diabetic gave her insight into life with a chronic disease. Because of this personal connection, she developed an interest in using chemistry to contribute to biomedical research. She is interested in finding novel chemical compounds that may serve as treatments for chronic diseases such as cancer or diabetes. Additionally, she is aware of the lack of diversity in higher education and research and feels especially compelled to conduct research of her own as a Mexican-Egyptian-American and first-generation college student. Fueled by her desire to conduct research, Jaida was accepted to the competitive U-RISE program (Undergraduate Research for Scientific Enhancement) and became a member of Dr. Robert Iafe's chemistry lab. Her research investigates benzotriazole derivatives that have potential to serve as antifungal drugs against the *Candida* species of fungus. Her goal is to obtain a Ph.D. in organic chemistry and work in academia where she can conduct research that identifies better treatments for chronic illnesses, as well as mentor students from underrepresented backgrounds.

OUTSTANDING ALUMNA SAMANTHA PAYNE LANDGRAVE • BIOCHEMISTRY

Samantha Payne Landgrave had her first research experience at the Summer Training Academy for Research Success (STARS) at the University of California San Diego in 2016, prior to transferring to CSU San Marcos from Palomar Community College. In this research experience she worked with Dr. Julian Schroeder investigating how elevated environmental CO₂ concentrations affect *Arabidopsis thaliana* stroma. Shortly after transferring, Samantha joined Dr. Julie Jameson's immunology lab. There she worked ardently to examine effects the immunosuppressant Rapamycin has on immune cell populations in barrier tissues. Rapamycin has been shown to increase longevity but how it affects the first barrier of defense is not fully understood. Due to her academic success Samantha received the CSUSM Corporation Scholarship in 2017. After being a Deferred Action for Childhood Arrivals (DACA) recipient, Samantha became a US Resident in 2017 allowing her to become a CSU-LSAMP Research Scholar. Additionally, she was accepted into the competitive RISE Program. In her time at CSUSM, Samantha was involved in various clubs and programs such as the American Chemical Society and SACNAS, promoting science to the youth and diversity in STEM. She graduated from CSUSM with a B.S. in Biochemistry in spring 2019 and joined the Cell Biology, Stem Cells, and Development PhD program at the University of Colorado Anschutz Medical Campus in fall 2019. Samantha has joined Dr. Michael Zuscik's research lab in the department of Orthopedics to pursue translational biomedical research.



Campus Coordinator:
Keith Trujillo, Ph.D.
Professor, Psychology
(760) 750-3680
keith@csusm.edu



OUTSTANDING RESILIENCE

FRIDA PEREIRA PALENCIA • BIOLOGY

Frida was born and raised in El Salvador in a single parent household. After many personal-safety threatening events, she and her immediate family moved to the United States, seeking political asylum. After her very first routine health checkup, Frida knew she wanted to study medicine. In spite of her life-changing relocation, her passion for learning, helping others, and medical science remained, giving her the strength needed to overcome any difficulties she encountered as a first-generation minority student trying to realize her dreams. Frida graduated from Sonoma State with a 3.7 GPA in Biology and was on the Dean's List throughout her four years. She was actively involved with JUMP (Join Us Making Progress), the biology club and the pre-health professions club. She was a MESA tutor, mentor and honors program student. During her junior year, Frida studied abroad at Queensland University of Technology in Brisbane, Australia. During this year, she backpacked around Australia and neighboring countries, making worldly discoveries while still keeping up with her studies. In Australia, she also volunteered at a non-profit organization for victims and survivors of domestic violence. Frida has also worked as an emergency room scribe at Santa Rosa Memorial Hospital, where she discovered a new, profound love for emergency medicine. Currently, she is working on getting EMT certified while completing her application for physician assistant school. Frida will use this title to advocate for health equity and bring high-quality medical care to her community, and to stand against discrimination within our healthcare system



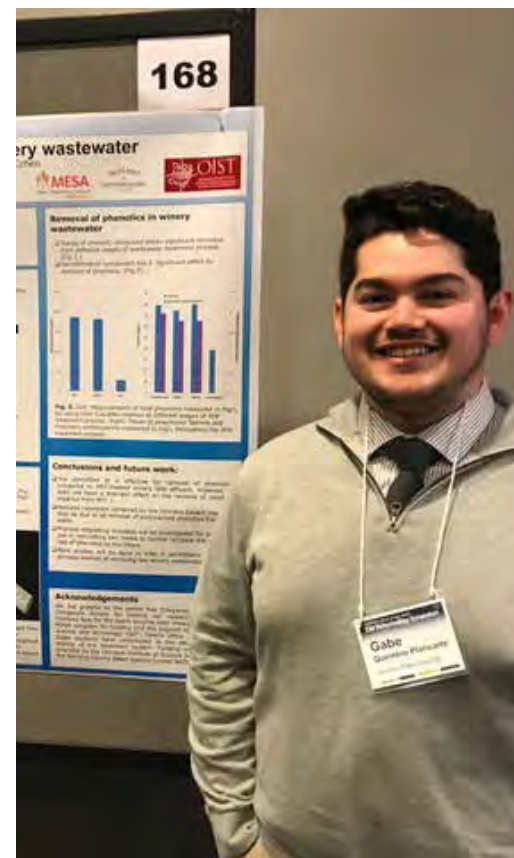
OUTSTANDING ACADEMIC

FABIAN RAMIREZ • MATHEMATICS

Growing up, Fabian Ramirez never considered himself a math person. As the son of two Mexican immigrants, he only knew the life of a working-class family who took low-paying, labor-intensive jobs to make a living in America. However, stumbling across the story of Fermat's Last Theorem, Fabian learned a valuable lesson: passion and persistence are more important than natural aptitude for a mathematician. Driven by this realization, Fabian attended Santa Rosa Junior College, where he earned an Associate degree in mathematics and was awarded a department award for his "outstanding potential" in mathematics. Fabian continued his undergraduate studies at Sonoma State University, where he quickly joined MESA, the McNair Scholars Program, CSU-LSAMP, and the Mathematical Epidemiology Research Group (MERG). As a member of MERG, Fabian worked under Dr. Omayra Ortega to mathematically determine the relationship between measles and vaccination rates. This resulted in a Best Poster Award at the Sonoma State Science Symposium, a publication in the McNair Scholars Journal, and poster presentations at national conferences. Eager to make the transition to pure mathematics, Fabian participated in the 2020 MSRI-UP program where under the tutelage of Dr. Edray Goins and Dr. Alex Barrios, Fabian worked to compute the monodromy groups of the classical modular curves. Fabian continued his work from MSRI with Dr. Alex Barrios; meanwhile, Fabian is in the early stages of working on a project with Dr. Natalie Hobson at Sonoma State. Fabian aspires to earn a PhD in pure mathematics and become a research professor to inspire the next generation of mathematicians.



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OUTSTANDING RESEARCH IN STEM

GABRIEL QUINTERO PLANCARTE • BIOLOGY

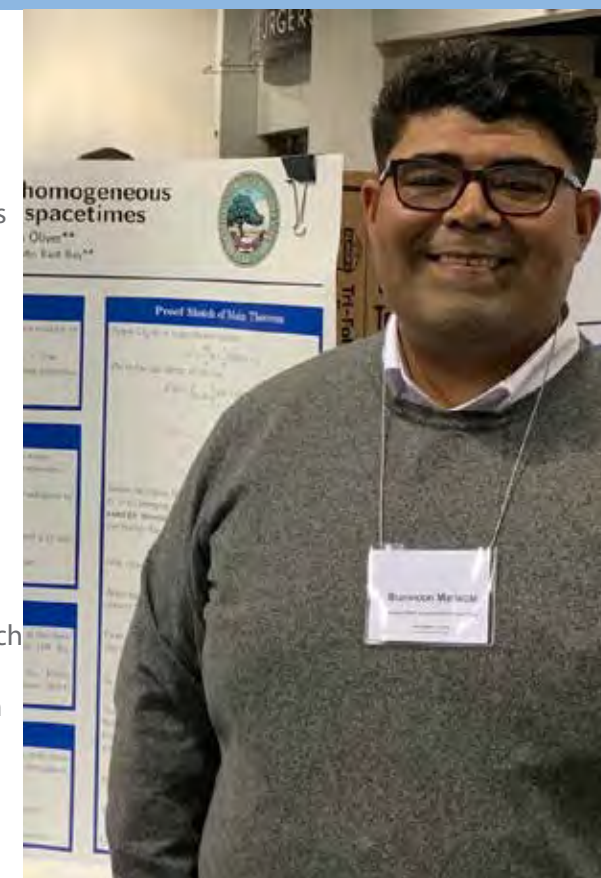
Gabriel Quintero Plancarte is a Biology major with a concentration in Molecular and Cellular Biology. He was born in Ario de Rayón, Michoacán and came to the United States with his mother at the age of one. During his early years, he often struggled in school. Often feeling discouraged, he spent most of his free time in supplemental programs and after school tutoring to catch up and feel a sense of belonging with his peers. During that time, he noticed the subjects that were easiest for him were mathematics and science. He felt as if they possessed a universal language he could understand, and it gave him a sense of confidence. Gabriel is currently the Treasurer for SACNAS Seawolves, a Supplemental Instructor (SI) for the Learning Academic Resource Center & SI program, a MESA student mentor, and a McNair's Scholar. He works with Dr. Michael F. Cohen using a sequential microbial fuel cell-vermifilter system to test the water quality from various steps of the treatment process by using assays for total organics, phenolic compounds and suitability for use in irrigation of various greenhouse-cultivated plants. He has presented at various conferences, like the Sonoma State Science Symposium, CSUPERB and McNair's Virtual Research Conference, and has been awarded the Ongaro Family Green Science main prize. Gabriel feels a sense of accomplishment with becoming the first in his family to graduate with a college degree. He plans to continue his studies and pursue a Master's in Microbial Genetics or in Molecular Cellular and Developmental Biology.

Campus Coordinator:
N. Sam Brannen, Ph.D.
Professor, Mathematics
(707) 664-2591
brannen@sonoma.edu

OUTSTANDING RESILIENCE

BRANNDON MARISCAL • MATHEMATICS

In his senior year of high school, Brannndon applied to several colleges but was rejected from every single one. Since no one else in his family has gone to college, he thought there was no pathway to higher education. Barely scraping by to pay bills, he was convinced he needed an education to get a good paying job. He started at a community college and took a double full-time course load — since this was the fastest way to meet the prerequisites to transfer to a four-year college. Right before transferring, tragedy struck, and several members of his family were deported. He had also started a family of his own. He took time off from school to gain some financial stability and kept studying on his own, while working sixty-hour weeks. During this time, he realized his passion was mathematics. He channeled all of his energy by studying advanced books and reading research papers. His hard work did not go unnoticed and was invited to participate in several research internships. That experience gave him a great foundation from which to apply to university as a transfer, and he was accepted at Sonoma State University. Brannndon initially struggled to make the transition — he moved over 500 miles away from home with his family, he worked full time while taking a full-time upper division course load and continued to do research. He is now a math PhD student at UC Riverside with an interest in mathematical physics.



CSU-LSAMP PROUD

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OUTSTANDING RESEARCH IN STEM
VANESSA HERNANDEZ • COMPUTER SCIENCE

Vanessa Hernandez is a first-generation student graduating with a Bachelor of Science in Computer Science and a minor in Chemistry at CSU Stanislaus. She took her first programming class during her sophomore year and fell in love with computer science. Being interested in computer science and chemistry, she decided to pursue both fields, specifically physical chemistry and data mining working with research mentors, Dr. Melanie Martin and Dr. Elvin Alemán. As a STEM Success RISE research assistant in a physical chemistry lab, she analyzed the understanding of corroles interaction with different solvents. In the data mining research group, she analyzed correlations between wine chemicals using different data mining techniques through RStudio to improve future winemaking. Vanessa has presented her research at various conferences such as the American Chemical Society and California State University Program for Education and Research in Biotechnology. Vanessa works part-time on the viticulture research lab at a local winery. In addition to having been on the Dean's List and earning a SERSCA mini-grant, she became a recipient of the NSF S-Stem Scholarship, which enabled her to attend several computer science conferences such as Tapia and Hispanic Engineer National Achievement Awards Corporation Great Minds in STEM. Vanessa became the vice president of the Computing Alliance of Hispanics Service Institution club and has been a member of the Girls Who Code. She has been inspired to encourage younger girls, especially her younger cousins, to join STEM. Vanessa appreciates the support of her research mentors, professors, peers and especially her parents.

OUTSTANDING SERVICE & LEADERSHIP
CRISTIAN GUTIERREZ • CHEMISTRY

Cristian Gutierrez is a first-generation college student who grew up in the Central Valley and is the middle child in a family of seven. He is currently a junior Chemistry major with a concentration in Biochemistry at CSU Stanislaus. He developed an interest in science after realizing how challenging and engaging it could be. After his outstanding performance in his science classes, which have been recognized with multiple Dean's List awards, he decided to apply what he was learning in the classroom to benchtop research. In his sophomore year, he joined the research group of Dr. Elvin A. Alemán in the Department of Chemistry to study the effect of different solvents on the photophysical, electrochemical, and spectroelectrochemical properties of corrole molecules. He is also a participant of the Data Mining Group, organized by Dr. Alemán and Dr. Melanie Martin (Department of Computer Science), where he gives weekly presentations about the chemistry properties of different compounds found in wine. He recently presented his work involving the isomers of resveratrol found in wine at the 2020 CSU Biotechnology Symposium. He also volunteers at the Modesto Gospel Mission, where he enjoys spending his time helping those in need and is inspired by listening to the incredible stories of those who work there. Cristian wants to be an example to his family members and anyone considering furthering their education to pursue their own goals. He wishes to encourage others to achieve their goals and wants to help in the World as much as possible.



OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP
ARLENA GAVINO • MATHEMATICS & ECONOMICS



Arlena Lirycy Gavino is a Mathematics and Economics major at CSU Stanislaus. Growing up, she attended a Title I public school where she saw how much low-income students struggled with academics and in life. She was determined to change it. By researching critical thinking in Mathematics Education, she focuses on trying to improve the quality of K-12 education, especially in low-income areas. She hopes to incorporate economic concepts in mathematics, to educate students financially, and increase their critical thinking and chances of escaping poverty. She has written about her work and presented it at many conferences thanks to the support of CSU-LSAMP and McNair. Her research was awarded 2nd place at Stanislaus' Annual Research Competition and two Phi Kappa Phi Undergraduate Awards. Arlena's conviction and drive are also apparent in her work ethic and success in academics. She is part of many honor societies and programs. Arlena has earned Dean's List every semester, received the 2019-2020 Outstanding Student Achiever for Mathematics B.A. and the Dean's Award of Excellence, an honor received by one student in each degree path. Arlena also provides leadership and support to the community. She volunteers regularly at local schools. She received certificates in Advanced and Executive Leadership from the National Society of Leadership and Success, as well as awards from Stanislaus State. Arlena has been able to showcase her leadership skills by taking on leadership positions in clubs, organizations and work. Arlena was recognized by the American Association for University Women and received the National Conference for College Women Student Leaders Award.

OUTSTANDING ACADEMIC & RESEARCH IN STEM
KATELYN GADD • GEOLOGY

Katelyn Gadd attended San Joaquin Delta College, where she graduated with honors and was awarded an Associate in Arts in Social and Behavioral Studies, Teacher Education Preparation, and History. She transferred to CSU Stanislaus in Spring 2018 as a Liberal Studies major with a concentration in Earth Science. Her love for the sciences and a desire for an academic challenge led her to change her major to a Bachelor of Science in Geology in the Fall of 2018. During her first semester in the Geology program, she sought out a research position and was given the opportunity to work under Dr. Julia Sankey in her Paleontology lab. Katelyn's research focuses on Late Cretaceous shark and fish vertebrate fossils found in the Hell Creek Formation of Southwestern North Dakota. The Hell Creek Formation is a geologic unit known for being fossil rich and for the presence of the K/P boundary, which marks the end of the Cretaceous and the mass extinction that wiped out the dinosaurs. Using the abundances of fossils found at the study area, Katelyn assessed the proximity of the Western Interior Seaway to Southwestern, North Dakota, which was further west during the Late Cretaceous than previously believed. She presented her research at the Geological Society of America's annual meeting in October, 2020. Katelyn has maintained an excellent GPA and has remained on the Dean's List every semester. Katelyn plans to attend graduate school to obtain a masters in Geology, and to pursue a career in geoscience education.



Campus Coordinators:

Melanie Martin, Ph.D.
Professor, Computer Science
(209) 667-3787
mmartin@csustan.edu

Marina Gerson, Ph.D.
Professor, Biological Sciences
(209) 664-6547
mgerson@csustan.edu

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CSU-LSAMP STATEWIDE OFFICE

6000 J Street, Sequoia Hall 226
Sacramento, CA 95819-6124
(916) 278-3838
csus.edu/csus-lsamp